NOVEMBER 28, 1960

PAPER TRADE JOURNAL

REVOLUTIONARY CHIPPER . . .

Complete details are given on Gaspesia's new chipping method

TISSUES AND TOWELS . . .

Here is the first full report on Scott's latest Mobile expansion

EARNINGS LAG FURTHER . . .

Third quarter financial report shows sales are lower as well

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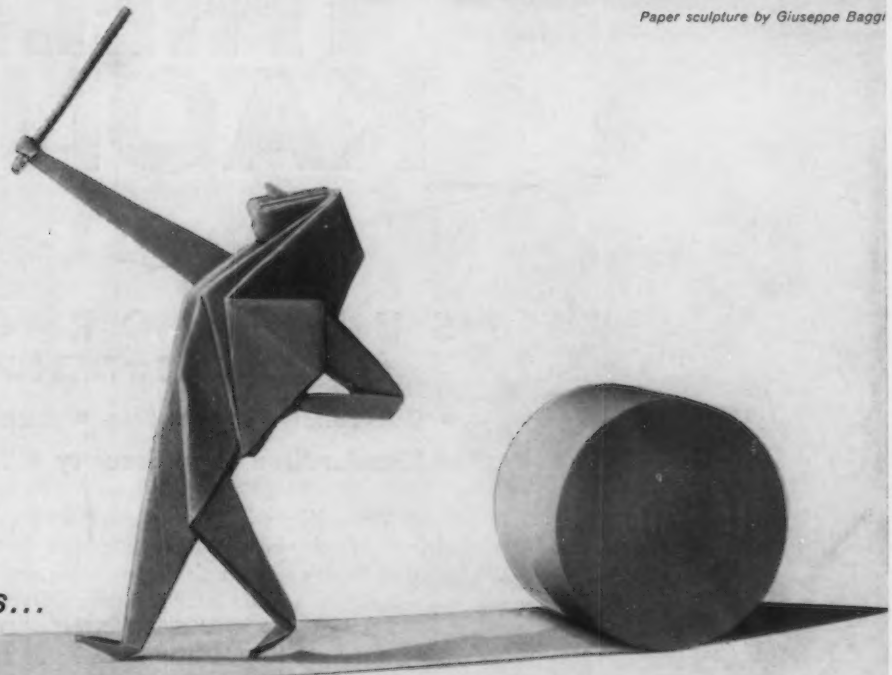
Paper sculpture by Giuseppe Baggi



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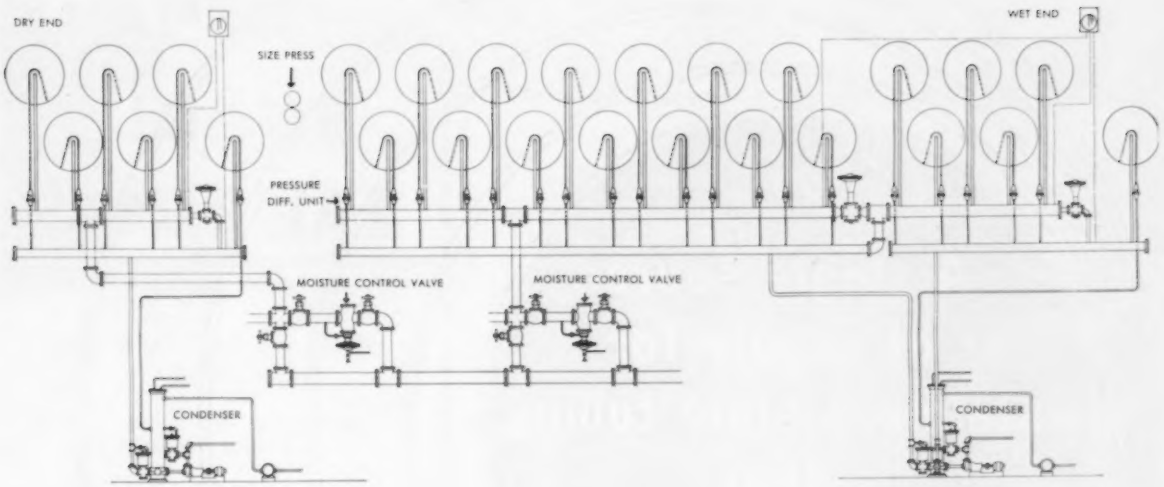

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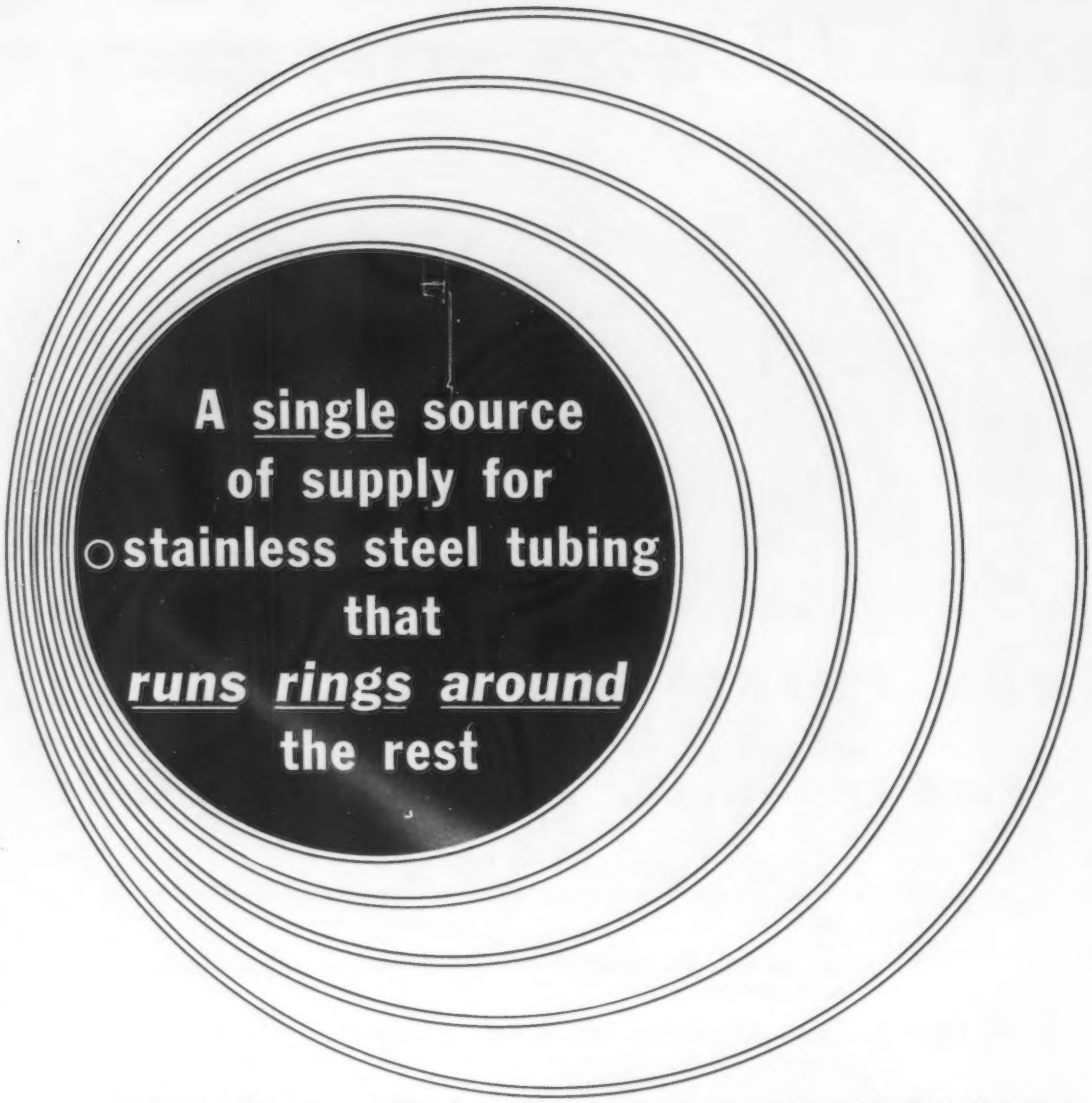

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PAPER TRADE JOURNAL

PUBLISHED WEEKLY SINCE 1872

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REMEMBER THESE DATES

January 24-27, Technical Section, CPPA Annual Meeting, Queen Elizabeth Hotel, Montreal, Canada

February 20-23, Paper Week in New York

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KOFILMS are breaking every record for starch performance in sizing and coatings. They are acetate ester derivatives of corn starch in which acetyl groups have been chemically substituted on the starch molecule. These functional acetyl groups impart new standards for flow, filming, strength, oil and grease resistance, viscosity stability and flexibility.

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KOFILMS size and coat an endless variety of paper products. Different viscosity grades can be selected to improve specific properties—as you can see in the actual mill results at right. Why not investigate Kofilms? We'd be glad to help. Just contact your nearest National office.

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And All Principal Cities in the United States, Canada, England and Mexico

ACTUAL MILL RESULTS

#1 MILL EVALUATION— BLEACHED KRAFT FOOD CONTAINER STOCK

Two production runs were made on a 100% bleached kraft food container stock: one with Kofilm 50 and the other with a starch derivative of equivalent viscosity. All application variables, such as temperature, machine speed, basis weight and internal sizing were kept constant. The data for each product were averaged over several hours of running time.

PRODUCT	SOLIDS, %	OIL PENETRATION VANCEOMETER, 120 secs (Microamps)	WAX PICK	POROSITY READING
Starch derivative	6.0	87	18	250
Kofilm 50	6.0	91	20	300

Higher Vanceometer and porosity readings demonstrate the excellent filming properties and resistance to oil penetration of Kofilms. Subsequent waxing showed that the Kofilm-sized board also had a significantly higher wax holdout.

#2 MILL EVALUATION— OFFSET GRADE

Two production runs were made on a 64 pound offset cover stock (20 x 26-500): one with Kofilm 80 and the other with a low viscosity oxidized starch. In this evaluation Kofilm 80 was employed at a solids content equivalent to that of the oxidized starch. All application variables, such as temperature, machine speed, basis weight and internal sizing were kept constant. The data for each product were averaged over several hours of running time.

PRODUCT	SOLIDS, %	WAX PICK	MULLEN	OPACITY	TEAR
Oxidized starch	14	14 to 16	60 to 67	0.95 to 0.96	220 to 230
Kofilm 80	14	16 to 18	64 to 70	0.96 to 0.97	240 to 260

The increase in opacity and tear with Kofilm 80 indicates less starch pickup although equivalent solids were used. When the concentration of the Kofilm 80 size was reduced to 12%, pick tests averaged 16. Actual printing tests of the paper also showed a significant improvement in the degree and uniformity of ink holdout.

#3 MILL EVALUATION— GREASEPROOF GRADE

Using an experimental paper machine size press, Kofilm 80 was run against an oxidized starch of equivalent viscosity on a one-side-sized greaseproof base sheet. Comparative flexibility and grease resistance were determined with a double fold turpentine test conforming to TAPPI Standard T-485 m 53. The sheet was uncalendered prior to testing.

CONCENTRATION %	OXIDIZED STARCH TURPENTINE PENETRATION, secs	KOFILM 80 TURPENTINE PENETRATION, secs
4.0	40	75
6.0	60	415
8.0	200	860

The markedly higher resistance to turpentine penetration obtained with Kofilm 80 on the severe double fold is attributed to the hydrophilic nature and superior flexibility of the starch acetate structure.

#4 MILL EVALUATION— VAT-LINED BOX BOARD

Two production runs were made on a vat-lined boxboard grade at the calender stack: one with Kofilm 50 and the other with a starch derivative at 25% higher solids. All application variables, such as temperature, machine speed, basis weight and internal sizing were kept constant. The data for each product were averaged over several hours of running time.

PRODUCT	SOLIDS, %	OIL PENETRATION VANCEOMETER, 60 secs (Microamps)	WAX PICK
Starch derivative	10	70	14
Kofilm 50	8	80	14

Even at a lower solids content, tough Kofilms exhibit higher oil resistance and comparable pick.

#5 MILL EVALUATION— KRAFT LINER BOARD

Two production runs were made on a 42 pound kraft liner stock at the calender stack; one with Kofilm 50 and the other with low viscosity oxidized starch of equivalent concentration. All application variables, such as temperature, machine speed, basis weight and internal sizing were kept constant. The data for each product were averaged over several hours of running time.

PRODUCT	SOLIDS, %	OIL PENETRATION VANCEOMETER, 20 secs (Microamps)	MULLEN	SCUFF
Water	0	15	105	100
Oxidized starch	6	45	110	140
Kofilm 50	6	52	110	150

The tough, hydrophilic film properties of Kofilm clearly demonstrate superior oil resistance and strength.

#6 MILL EVALUATION— EFFECTS OF REDUCED COATING WEIGHT ON ROLL-COATED LETTERPRESS PAPER

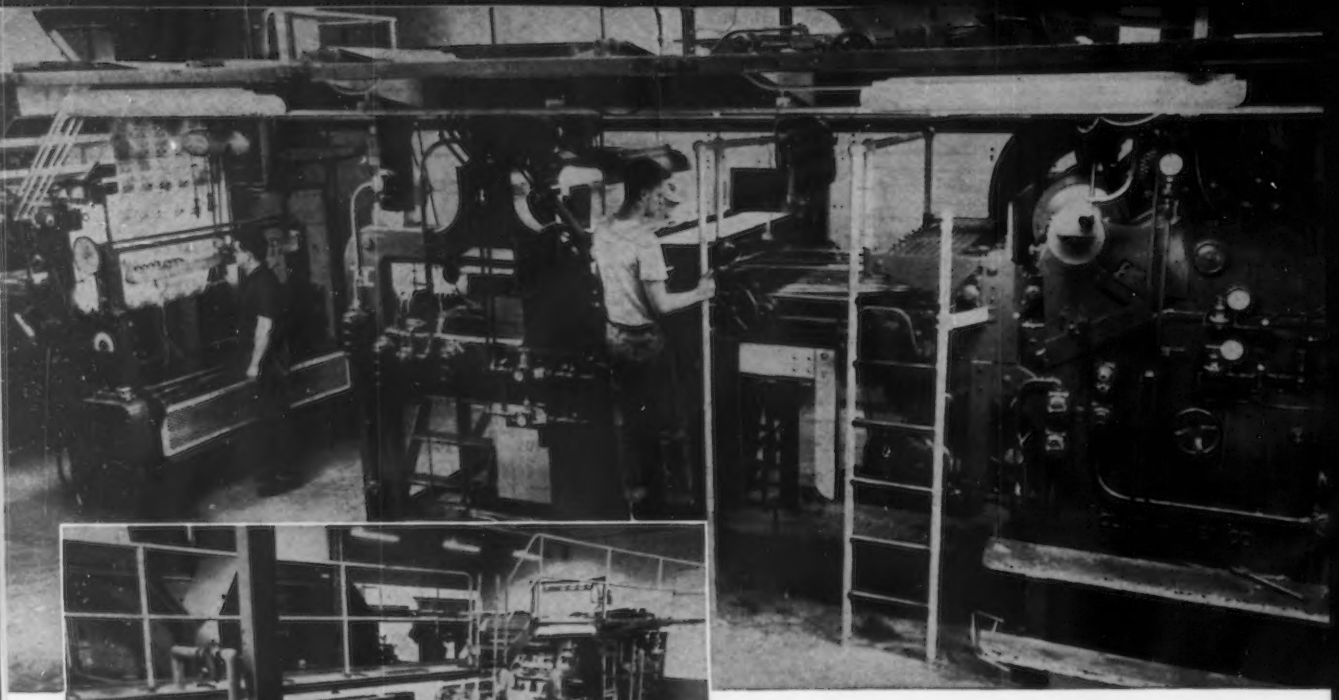
A coating was applied on a 28 pound letterpress base stock with a roll coater, using a 3 to 1 mixture of Kofilm 80 and Kofilm 50. The mill compared results with paper produced by their standard enzyme converted binder system. All application variables, such as temperature, machine speed, basis weight and internal sizing were kept constant. The data for each product were averaged over several hours of running time.

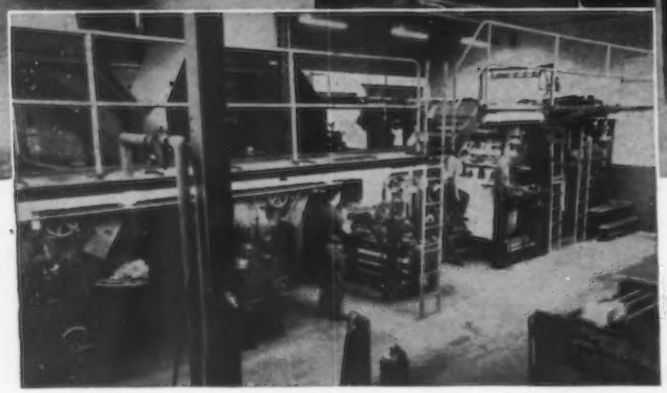
COMPONENTS AND DATA	KOFILM	ENZYME CONVERTED CORN STARCH
Coating clay, parts	100	100
Starch, parts	12	16
Calcium stearate, parts	1	1
Solids, %	55	62
pH-adjusted with caustic	8.5	8.6
Viscosity, cps Brookfield 20 rpm	5000	4500
Coat weight per side/ream basis, lbs.	4.5	6.0
Wax pick	6	5
Opacity	92.3	93.0
Show-through resistance	good	good
Ink gloss	88	87

Both formulations were of equal cost. In the Kofilm formulation the coating weight was reduced by 25% without loss of quality. The mill commented that Kofilms showed greater ease of formulation and superior machinability.

National KOFILMS National

UNIQUE ACETYLATED ESTERS OF CORN STARCH





KVP

demonstrates the Speed, Precision and Rigidity of Clark-Aiken Sheeters

In 1950, when The KVP Company, decided it would be possible to eliminate rewinding and greatly simplify handling by hooking a sheeter to the delivery end of its big, high-speed No. 10 four-color rotogravure press, selecting the right sheeter imposed a problem for KVP engineers.

It had to be flexible in its operation to permit synchronization with the press.

It had to be accurate to make each cut of the printed sheet right on the line.

It had to be rigid to withstand the strains of continuous high-speed operation and maintain this accuracy.

Based on their experience with Clark-Aiken Sheeters in the KVP finishing room, they decided that a 52" Type C Clark-Aiken Cutter-Layboy Unit would do the job best.

Wisdom of this decision is borne out in the following report from Dellmore Moffett, Superintendent of Printing of The KVP Company.

> *"The Clark-Aiken sheeter at the end of our No. 10 4-color rotogravure press is valuable to us for three things. First, its rigid construction. Second, its speed. Third, and most important, its accuracy. I am tempted to use the word 'unbelievable' ahead of the word 'accuracy' for it far surpasses our original expectation. We are actually able to control it within the width of a period, or small dot."*

In addition, KVP enjoys the benefits of such exclusive Clark-Aiken design features as

- The "Spiral Shear" Cylinder Knife that makes clean, sharp cuts on any type and weight of stock.
- One-Piece Knife Assembly that automatically maintains alignment when squaring the sheet.
- Scale-Setting of Slitters and Joggers that makes possible straight-line travel between slitters and pile without use of tapes.
- Lifetime Tapes which outwear old types many times, practically eliminate stretch troubles.

If you are sheeting paper, pulp, board, film, foil or fabric and require sustained high-speed operation with sustained accuracy and low operating and maintenance costs, Clark-Aiken has a sheeter exactly suited to your needs and can furnish it with a layboy and roll stand exactly suited to your requirements and operating conditions. Clark-Aiken engineers will gladly study your sheeting operations and offer recommendations with actual cost and savings estimates.

THE Clark-Aiken COMPANY

956 SPRINGFIELD ROAD

LEE, MASSACHUSETTS

West Coast Office: 114 East Union Street, Pasadena, Calif.

Trends

Industry Earnings Decline Continues

Slight drop in sales—big drop in earnings, sums up the financial picture of our industry for the third quarter. An article beginning on page 28 presents details for the industry and a number of leading companies.

Haguet Forecasts Bright Outlook for 1961

The paperboard industry is characterized as one of the bright spots in the economy and will have a gradual pickup for the remainder of the year and then an accelerated increase in 1961. This is what P. W. Hoguet, president, The Econometric Institute, told the National Paperboard Assn. last week. Mr. Hoguet's remarks will be summarized in an article on this subject in our next issue.

Some Fine Paper Prices Up

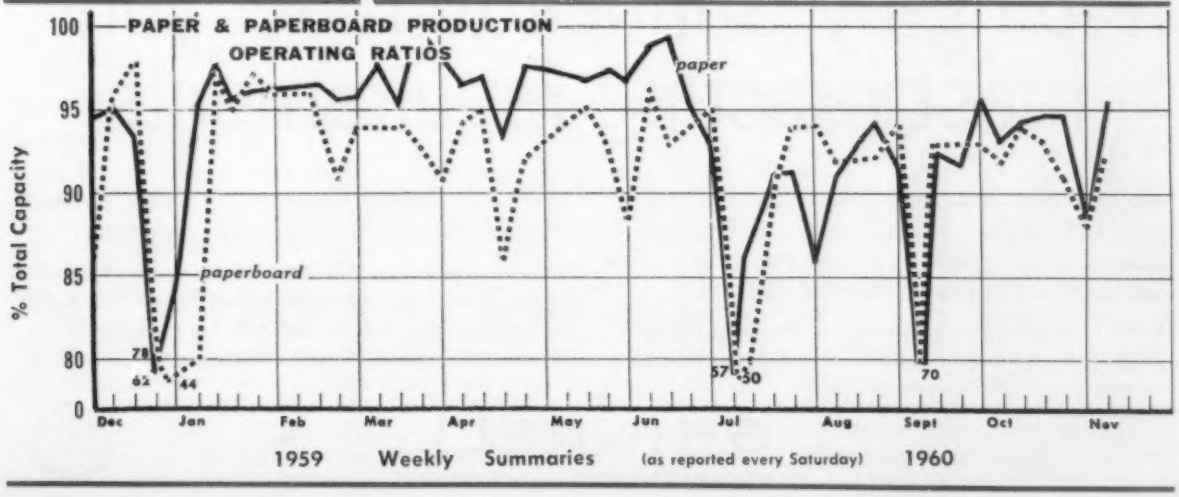
Price rises are being made by a number of fine paper manufacturers. Increases are about $5 a ton and have covered envelope, offset and tablet grades. If justification is needed the previous item on declining earnings provides it.

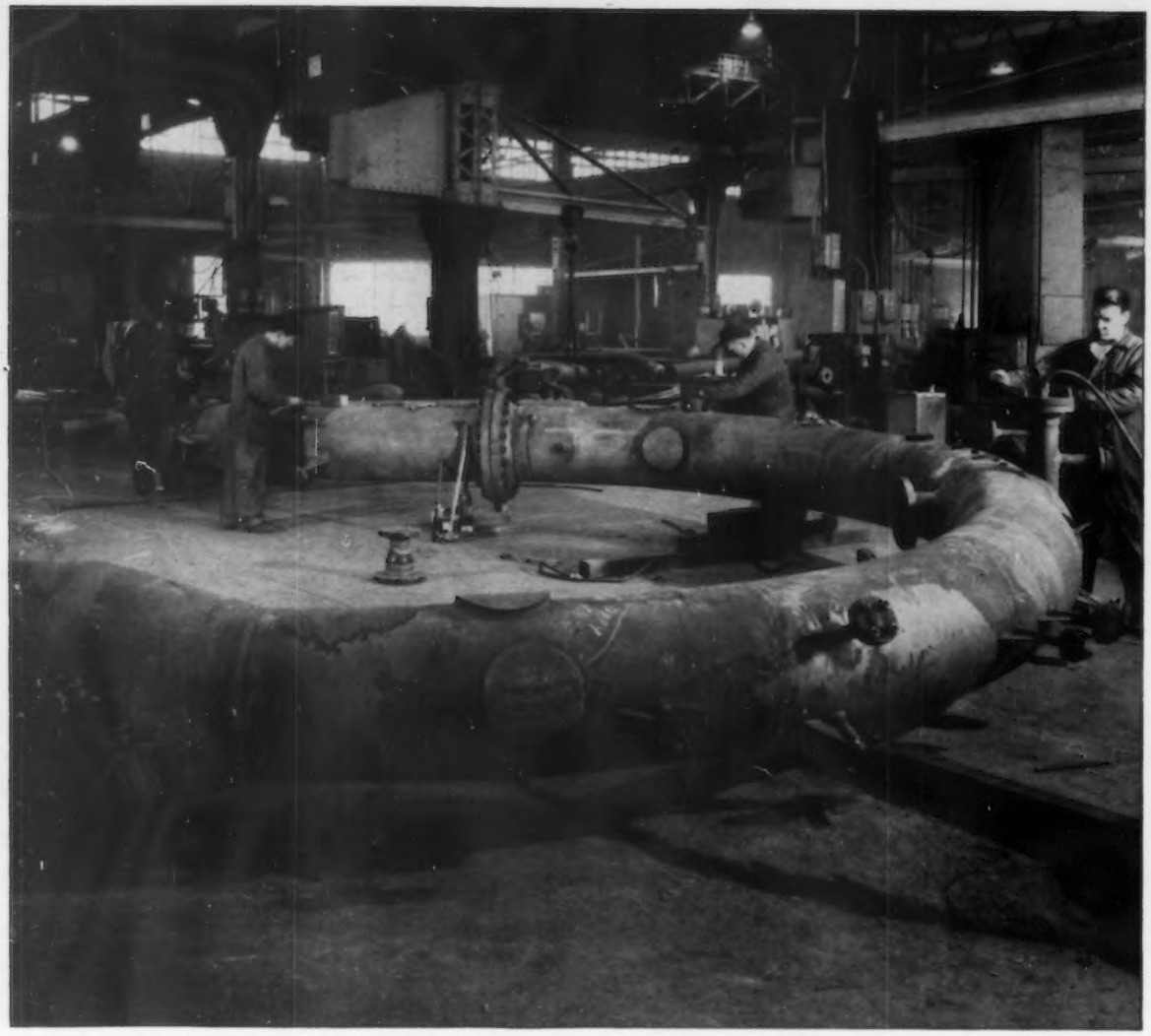
January-October Output Up 1.4%

APPA estimates Jan.-Oct. paper and board production at 28.9 million tons. This indicates that production is 1.4% above the comparable period last year. Paper output was 12.9 million tons, up 3.6%; paperboard was 13.3 million tons, up 0.3%, and construction paper and board production was 2.7 million tons, a decline of 2.8%.

Pulp Prices Stabilize

North American pulp prices have stabilized following the break in bleached pulp prices earlier in the month. Bleached sulphite is now $135/$145 depending on brightness, similarly bleached kraft is $135/$145. Drops were also registered for soda, semi-bleached kraft and some Canadian unbleached kraft. Action of Scandinavian producers selling in this country has not yet been completely clarified.





This 5% chrome – ½% moly pipe assembly fabricated for Imperial Oil Limited, designed to operate at 1150°F.

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Whatever your piping requirements, Grinnell can meet them. Grinnell assures this because of a thorough understanding of piping needs — coupled with ability to produce to your most exacting specifications.

From interpretive engineering — through exclusive methods of prefabrication and testing of pipe and hanger units — to precision assembly and delivery, Grinnell offers you one-company control and responsibility.

When you deal with Grinnell, you can count on installations of any size, at costs known before you start, with proper performance assured. Grinnell Company, Providence 1, R. I. Branch offices in principal cities.

GRINNELL

WHENEVER PIPING IS INVOLVED

PAPER TRADE JOURNAL
WEEK OF NOVEMBER 28, 1960

Brunswick Expansion Includes Board Production

The boards of directors of Scott Paper and The Mead Corp. have approved a $35,000,000 expansion program of their coequally owned affiliate, Brunswick Pulp & Paper Co.

Brunswick's production will be increased 500 tons per day, doubling the operation's present capacity.

Mead and Scott will buy additional common stock in Brunswick to finance part of the expansion, with the remainder of the money being provided by loans to the Brunswick Pulp & Paper Co. from financial institutions. Giving effect to the proposed investment, the Mead-Scott ownerships will remain equal.

A new pulp drying machine will make it possible for Brunswick also to manufacture bleached board for the first time in its history.

Brunswick was established in 1936 by Mead and Scott to manufacture bleached kraft pulp. Its initial daily capacity was 150 tons. Expansion programs in 1940, 1948 and 1951, along with increased efficiency, have brought production to 500 tons.

United Board, Interstate Container Open Merger Talks

Directors of United Board & Carton Corp. authorized the company's officers to open talks with Interstate Container Corp. regarding a possible merger of the two companies.

Last June the New Jersey Supreme Court blocked a plan under which United Board would have acquired Interstate Container, a privately held company which makes corrugated cartons. Acquisition had been challenged by two United Board stockholders who filed suits maintaining the transaction was actually a merger. Under the law in New Jersey where United Board is incorporated, a merger requires two-thirds stockholders approval and dissenters are allowed to sell their holdings back to the company at a price set by independent appraisers.

At United Board's annual meeting, William S. Stuhr, chairman, resigned the post of president which he also had held. Mr. Stuhr said duties of the two positions should be divided.

Albert Marchini was elected president. He has been vice president in charge of United Board's Ridgefield Park, N. J., plant.

Spain Plans More Newsprint Capacity

CEPAL (Assn. of Free Paper Plants) has announced plans for six new paper mills in Spain with total combined production of 112,000 tons, including 45,000 tons of newsprint. Entire output will be exported, according to Foreign Service Dispatch from Madrid.

Mechanical pulp for the newsprint will be produced from Galician "Pinaster Pine" with annual cut of 22,000 tons. Rest of pulp will be imported from Scandinavian countries.

Paper and Pulp Export To Japan Gains

Expansion in economic activity in Japan caused a substantial increase in United States exports of paper pulp, totalling $7.9 million in the first six months of 1960.

A current study of U.S. trade with Japan, just published by the U.S.-Japan Trade Council, comparing the first half of 1960 with the same period of 1959, shows that U.S. exports to Japan in this period were $646 million with imports from Japan at $557 million.

In the first half of 1960 Japan was again the largest overseas customer for the United States, as well as the second most important source of U.S. imports. To some extent the growth in exports is attributable to the overall recovery of U.S. international trade. But exports to Japan have risen far more than U.S. exports in general. Though U.S. exports to all countries were 21 per cent greater in the first half of 1960 than in the corresponding period of 1959, exports to Japan were 48.2 per cent higher.

St. Regis Shuts Down Machine for Repairs

St. Regis Paper Co. announces that one of the paper machines at its kraft paper mill at Pensacola, Fla., was shut down for a period of 11 days commencing November 10. The machine was shut down for the purpose of making essential repairs.

October News Production Hits All-Time High

Production of newsprint in North America during October 1960 amounted to 775,894 tons—an all-time high for any month on record—and was 0.7 per cent above the October 1959 volume. Shipments totaled 771,548 tons in October 1960 and were 1.3 per cent below shipments in the same month of 1959. According to the Newsprint Service Bureau, output in the United States of 184,531 tons surpassed that in any month on record while shipments totaled 183,338 tons, and respective gains over October 1959 amounted to 4.1 per cent and 2.2 per cent. Canadian production amounted to 591,363 tons while shipments totaled 588,210 tons, which represents decreases from October, 1959 of 0.3 per cent and 2.4 per cent respectively and reflects the loss of one working day this year as compared with 1959.

Production of newsprint paper in North America in the first 10 months of 1960 amounted to a record 7,305,929 tons, which was 385,582 tons or 5.6 per cent above the level attained in the same period of 1959.

Buckeye Extends Safety Record

Employees of Buckeye Cellulose Corp.'s pulp mill in Memphis, world safety champions in the pulp and paper industry, have extended their record of injury-free performance to 6,000,000 consecutive manhours.

As John Lea (left in the above photograph), Obed Windham, plant safety engineer, and David Scott hold the banner, E. R. Stevens, industrial relations supervisor, tries to fit in a sixth star, representing Buckeye's sixth consecutive million manhours worked without a lost time injury. Mr. Lea and Mr. Scott, with combined service of 60 years at Buckeye, accept the star on behalf of their fellow employees.

CPPA Technical Section to Meet in Jan.

The 1961 Annual Meeting of the Technical Section, Canadian Pulp and Paper Assn., will take place at the Queen Elizabeth Hotel, Montreal, on the last Tuesday, Wednesday, Thursday and Friday of January, the 24th, 25th, 26th and 27th. Sessions will begin at 2:00 p.m. on Tuesday and will end at noon on Friday. The registration desk will open at 9:00 a.m. on Tuesday.

A products display will be held concurrently with the meeting. Participation in the products display is restricted to sustaining members of the section and only registered delegates at the meeting will be admitted to the display.

Tentative topics for discussion at the Annual Meeting in the form of formal papers or as group discussions include the following:

High Temperature High Velocity Air Drying of a Paper Web

Super Calender Drive Selection

Fuses in the Electrical Industry

Logic Circuitry in the Pulp and Paper Industry

Materials Handling Clinic

Application of Automatic Weighing Devices

Plant Tested Ideas for Profits

A System for Segregating and Controlling Material Handling Costs

Material Handling Without Smashups

Belt Grinding of Rolls

Maintenance Planning and Scheduling

Panel Discussion on Return Line Condensate Corrosion

Review of Waste Paper use in the Board Industry.

Electronic Sorting of Fine Papers —Rolland Paper

Automatic Sorting of Fine Paper at Georgetown

Preliminary Report on Felt Air Porosity Measurements

Digital Draw Indicator on Paper Machines

Wet End Variables at Anglo-Canadian

Draw Recorder Benefits on Paper Machines

Panel Discussion on Use of Plastic "Wires" for Fourdriniers

Correlation Between Newsprint Formation and Printability

Radio Active Tracer Studies on a Kamyr Digester

Interractions of Smelt and Water

Crude Tall Oil Refining

Groundwood Storage and Agitation —A Panel Discussion

Beater Evaluation

Panel Discussion on Pulp Moisture Testing and Modifications to British Pulp Evaluation Apparatus

Discussion on Corrugated Container Technical and Manufacturing Problems

Gas Relief Control on Alkaline Pulp Digesters

Instrumentation on a Continuous Digester

Discussion on General Digester Controls

A Model Experiment in Pulp Blending

Color Reversion of Bleached Pulps

An Ammonia Base Recovery System

A Soda Base Recovery System

Nodes in Fibers

Fracture of Wood in Relation to Groundwood Manufacture

Grafting Polymers onto Cellulose

Digester Stresses: Their Causes and Effects

Dispersion of Aqueous Mixtures of Titanium Dioxide by Chemicals

Maintenance Planning and Scheduling

Press Section Research at Beloit

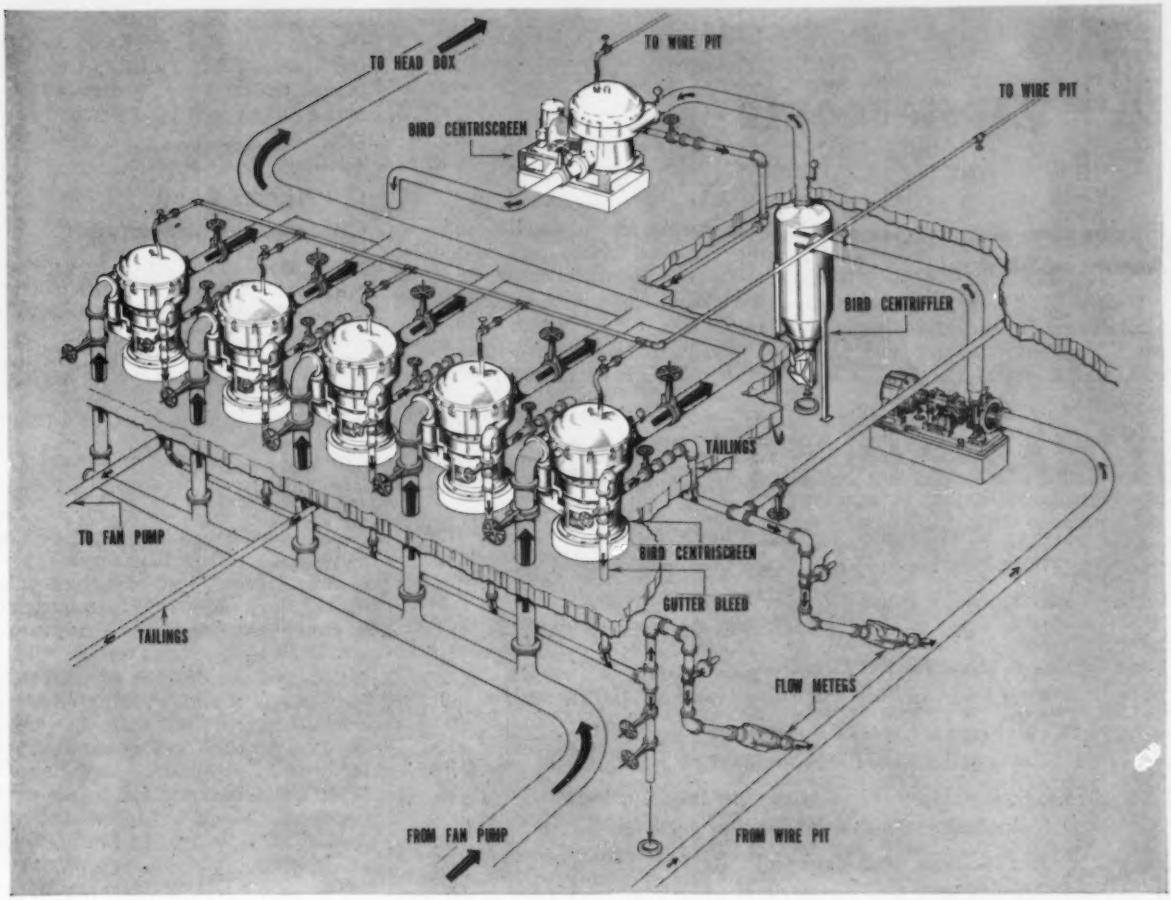
Requests for accommodation at the Queen Elizabeth Hotel should be addressed to Nelson Verge, rooms division manager, and should mention date and time of arrival. In the event that the Queen Elizabeth is unable to handle your requirements, the following are some of the other suitable hotels in the area: Laurentien, Sheraton-Mt. Royal, Windsor, Ritz Carlton, Queens, Berkeley, LaSalle and Royal Embassy.

Paper and Paperboard Production

The American Paper and Pulp Association reported the ratio of the United States paper production to mill capacity for the week ending November 12, 1960, at 95.5 per cent, compared with 90.7 per cent, revised, for the preceding week. The ratio was 96.5 per cent for the corresponding week a year ago.

The National Paperboard Association reported the paperboard production ratio for the week ending November 12, 1960, at 92 per cent, compared with 88 per cent for the preceding week and 95 per cent for the corresponding week a year ago.

(Detailed Statistics on page 43)



The modern, three-stage dirt removal system, pictured, employs a battery of Model 14 Bird Centriscreens to deliver full tonnage to the headbox of a big, high speed paper machine. The tailings go to a Bird Centriffler which removes all the sand and grit so it cannot do damage to the machine wire. The accepts from the Centriffler are put through a Model 10 Centriscreen which delivers all the good fibre to the headbox and returns the rejects for reprocessing. The system pictured is handling 30,000 gpm.

WHAT'S IN IT FOR YOU?

Whether yours is the kind and volume of stock that calls for a three-stage screening system such as this, a single, small screening unit or something in between, you *do* need modern, sturdy, compact, super-efficient Bird Centriscreen pressure screening units to do the job.

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PAPER PEOPLE

Hedgepeth Award Goes to Adams of St. Regis

Charles E. Adams, assistant technical superintendent of St. Regis Paper Co.'s Pensacola pulp and paper mill, was awarded the first Hedgepeth Award for outstanding work in the fields of water and industrial waste treatment, in ceremonies at Fort Lauderdale, Fla., on November 16.

The award, established in memory of the late L. L. Hedgepeth, for many years waste water consultant with the American Cyanamid Co., goes to the person in Florida Industry judged the most outstanding worker in the field of industrial wastes treatment.

O-I Names Reed Chicago Plant Manager

The appointment of C. E. Reed as general manager of the Chicago plant of the Paper Products Division of Owens-Illinois Glass Co. was announced by Edwin D. Dodd, Owens-Illinois vice president and division general manager.

SFI Names Four To Top Posts

Organization of the company into four major groups and the naming of four top echelon executives has been announced by J. B. Edens, president of Southwest Forest Industries, Inc.

"Diversification of our company from purely a lumber manufacturer into an organization that embraces paper products as well as wood parts and products makes it essential for us to streamline and decentralize our operations," he said. "Under our new plan of action, which is now in effect, our corporate structure will be broken down into four separate spheres of operation," he explained.

The four operations will be: Administration; Wood Products Group; Paper Products Group; and the Transportation Group. Each group will be headed by an executive vice-president. Named to fill the four top spots with the company are: P. C. Gaffney, Administration; E. L. Quirk, Wood Products Group; R. E. Baker, Paper Products Group; and S. E. Mounes, Transportation Group.

The Paper Products Group, with R. E. Baker as its executive vice president, will comprise Southwest's new pulp and paper mill now under construction at Snowflake, Ariz.; the company's Container Division with plants in Los Angeles and Glendale, Ariz.; and the operations of the Wilson Paper Co., the Vernon Container Corp. and the Pioneer Wrapper Co., all of Los Angeles. Mr. Baker joined Southwest in April of this year. He was formerly a vice president of The Weyerhaeuser Co. in charge of manufacturing in the pulp and paperboard division. A native of Salem, Ind., Mr. Baker was graduated from DePauw University as a chemistry major. He later received his Ph.D. from the Institute of Paper Chemistry in Wisconsin.

IT MADE SENSE TO THEM . . .

HENRY W. MOOSEKER, *General Superintendent*
West Virginia Pulp and Paper Company, Tyrone, Pa.

ROY L. SHARP, *Plant Engineer*
West Virginia Pulp and Paper Company, Mechanicville, N. Y.

ROY L. REED, *Project Engineer*
West Virginia Pulp and Paper Company, Covington, Va.

W. M. FINLEY, *Exec. Vice President*
Tennessee Paper Mills, Chattanooga, Tenn.

WILLIAM P. MANLEY, *Sheeting Operation Supervisor*
Hercules Powder Co., Hopewell, Va.

C. L. FERGUSON, *Mill Manager*
Oxford Paper Co., Rumford, Me.

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NEWS OF CONVERTERS

Packaging Materials Corp. Chooses New President

Thomas H. McConnell, Jr., has been appointed president of Packaging Materials Corp., manufacturer of industrial packaging products. He succeeds C. E. Carpenter, who has resigned to devote full time to his numerous other business activities.

Formerly associated with Haartz-Mason, Inc., of Watertown, Mass., and Vulcan Rubber Products Co. of New York City, Mr. McConnell joined Packaging Materials Corp. in March 1960 as a management consultant, in which capacity he served until his elevation to the top administrative post.

Packaging Materials Corp. has its national sales office at 104 East 40th Street, New York 16, N.Y., and centers its production and distribution at its Astoria, Long Island, plant. Overseas operations, an important part of the company's activities, include affiliates in Denmark, West Germany and Holland. Trade name of its products is Pillo Pak.

Institute For Better Packaging Reorganized

The Institute For Better Packaging, with 27 charter company members, has reorganized to serve as the trade association of paperboard packaging manufacturers devoted to the researching and promotion of packaging techniques for dairy, frozen food and meat products, it was announced by J. Hutchinson, chairman.

At the same time, the executive committee announced that the Paraffined Carton Research Council, which was originally formed to develop research and statistical information, will be discontinued. Those functions will now be included as an integral part of the new Institute.

Headquarters office of the Institute For Better Packaging is in Chicago. Harvey H. Robbins, who has been active with the packaging industry for over 25 years, continues as the executive secretary.

The executive committee includes Jack Hutchinson, Bloomer Bros., Div. of Riegel Paper Corp.; E. V. Krueger, Marathon, Div. of American Can Co.; William Nash, KVP-Sutherland Paper Co.; D. T. Neale, Edwin J. Schoettle Co., Inc.; J. D. Scott, Container Corp. of America; R. H. Smith, Chicago Carton Co.

EDITORS NOTE — It seems regrettable that with all the confusion of the present welter of industry associations that this is further compounded by the formation of a new association with such a misleading name. By its own announcement the association is devoted to food packaging and yet the name implies that it is concerned with all types of packaging.

Thompson Heads Gummed Industries Ass'n.

Stuart E. Thompson, vice president of Central Paper Co., Menasha, Wis., was unanimously re-elected president of The Gummed Industries Ass'n. at the group's 1960 Annual Meeting held at the Greenbrier, White Sulphur Springs, West Va., on October 20 and 21.

Saul Warshaw, president of Atlantic Gummed Paper Corp., Brooklyn, N. Y., was unanimously re-elected as vice president and Philip O. Deitsch as the group's managing director. Mr. Deitsch's re-election will mark his 24th year of service to the Gumming Industry.

In addition to the president and vice president, the following were named to the association's board of directors: Stanley Greenblath, Superior Tape Corp., S. Hackensack, N. J.; Edward F. Herrlinger, II, The Gummed Products Co., Div. of St. Regis, Troy, Ohio; R. T. Meyer, Tape, Inc., Green Bay, Wis.; C. H. McCarthy, Crown Zellerbach Corp., San Francisco, Calif.; Herbert Adelman, The Crowell Corp., Yorklyn, Del.; B. E. Blakey, Union Bag-Camp Paper Corp., New York, N. Y.; and Fred Rothschild, General Gummed Products, Inc., Linden, N. J.

Interest at the association's Annual Meeting centered around the presentation of a Container Laboratories research report on gummed paper sealing tape and gummed reinforced sealing tape. This research report was presented by officials of Container Laboratories and reflects nine months of testing and market research conducted by the Laboratories on behalf of the Gumming Industry.

Weyerhaeuser Opens Lynchburg, Va., Plant

Opening of a new shipping container sheet plant at Lynchburg, Va., has been announced by Weyerhaeuser Co. It will produce containers from paperboard manufactured by Weyerhaeuser plants at Charlotte, N. C., and Baltimore, Md.

Start of production brings to 22 the number of shipping container manufacturing plants operated by the company in 17 states. Additional production facilities are under construction at Olympia, Wash., and Cloquet, Minn.

The new 57,000-square-foot Lynchburg plant was constructed of Weyerhaeuser building materials and can be expanded in the future.

Elmo Hicks has been appointed resident manager. He joined the company August 1 after serving as general manager of Old Dominion Box Co. at Lynchburg.

Bemis Acquires Interest In Systemation Corp.

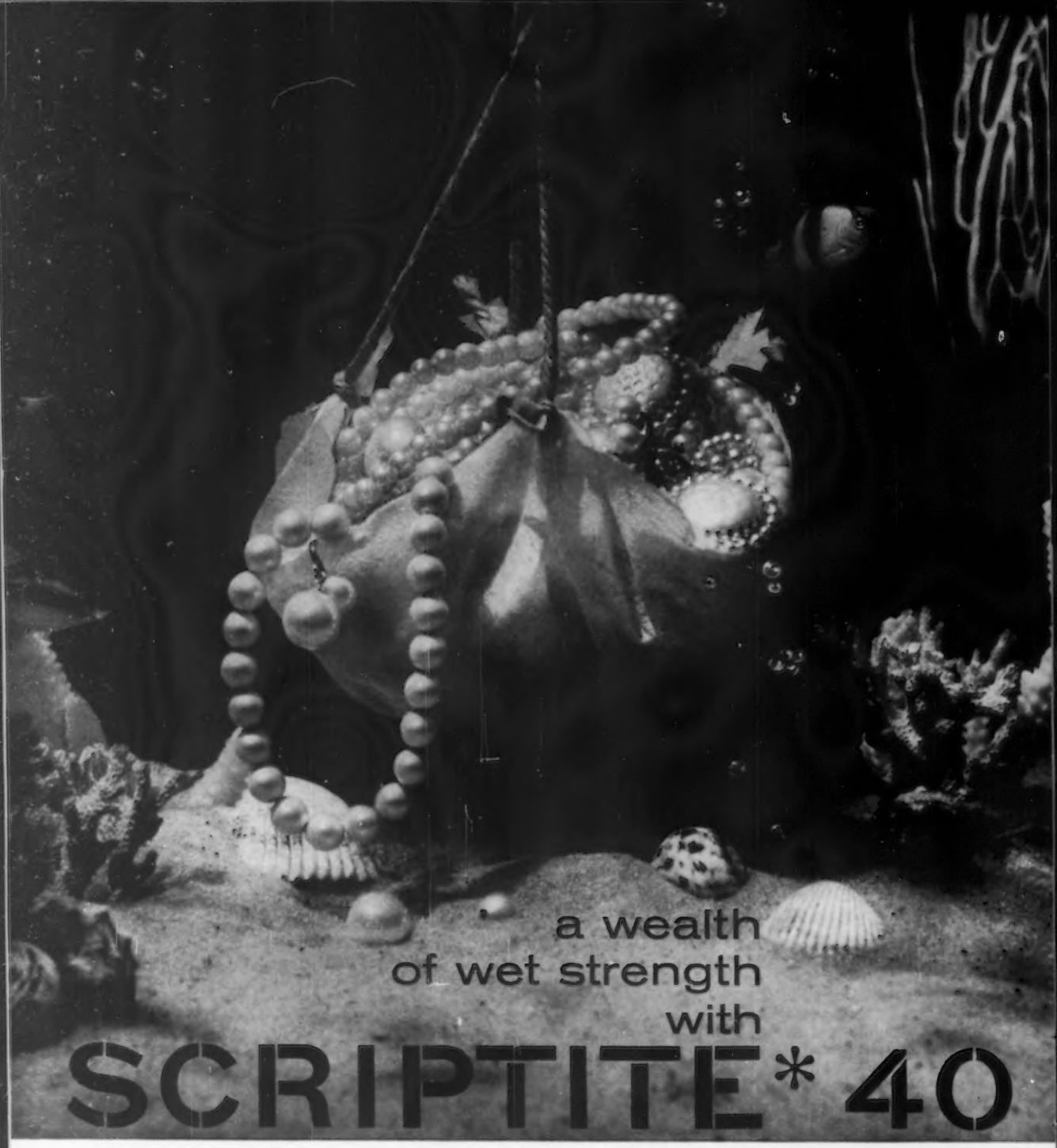
Bemis Bro. Bag Co. has acquired a substantial interest in The Systemation Corp., a St. Louis area firm which specializes in the development of integrated and automated packaging systems and machinery.

"The Systemation Corp. is a new and highly imaginative organization which already has made substantial contributions to advanced packaging systems and equipment in several industries, notably for drug and paint companies," Bemis said. "It will strengthen our diversification program into allied packaging fields and supplement the assistance we already provide industrial customers through our Packaging Service organization."

Bemis said that the added financing and administrative support which will be provided through the company's arrangement with Systemation will give the smaller organization a maximum opportunity to exploit its growth potential.

The company, with plant and office headquarters in suburban Chesterfield, Mo., was founded in 1958 by its president, Philip H. Lanham. In addition to creating total packaging sys-

(Continued on page 18)



A cationic urea-formaldehyde resin, Scriptite 40 imparts a high degree of wet strength to paper, with less resin add-on. In addition to raising tensile and wet bursting strength, Scriptite 40 also improves dry tensile strength, dry mullen, wet rub resistance, internal sizing, pick resistance, dry stiffness, dimensional stability, and folding resistance. For technical assistance, samples, and literature, write to Monsanto Chemical Company, Plastics Division, Room 779, Springfield 2, Massachusetts.

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*SCRIPTITE: Reg. U. S. Pat. Off.

Modern Methods of Mechanical Pulp Manufacture

This book comprehensively covers all aspects of groundwood pulp production. The author, K. H. Klemm, has a broad knowledge of groundwood manufacturing methods and has been associated with groundwood mills on both sides of the Atlantic. Price: $5.00.

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Jamesbury installation at Mead Corporation Chillicothe Plant

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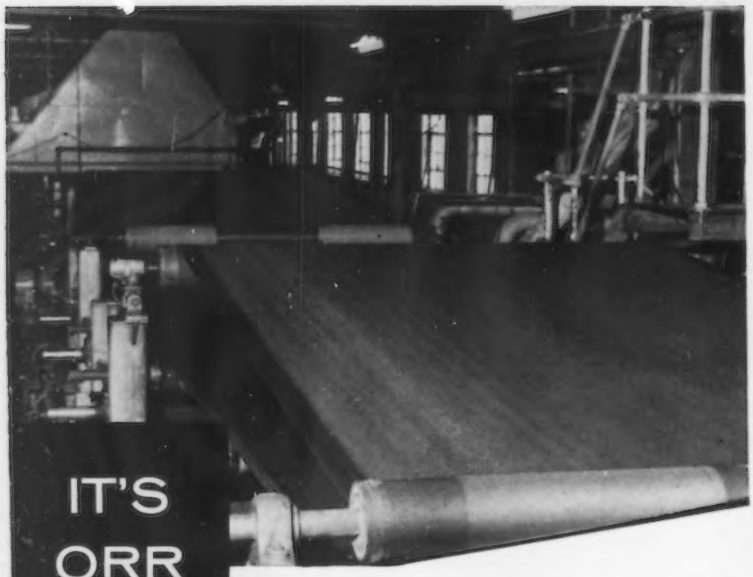

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PIQUA, OHIO

NEWS OF CONVERTERS

(Continued from page 15)

tems, the company has developed advanced packaging machinery, including several pieces of equipment in the case setup and loading field.

Bemis subsidiary operations include Rose Ribbon & Carbon Mfg. Co., Inc., of Harrison, N. J., the Morgan Adhesives Co., Stow, Ohio, and Air-Formed Products Corp., Nashua, N. H., a manufacturer of blow-molded plastic containers.

Alling & Cory and J.L.N. Smythe to Merge

Directors of the Alling & Cory Co. of Rochester and of the J. L. N. Smythe Co., of Philadelphia have voted to call a special meeting of their stockholders to approve a merger of the two companies, C. L. Van Derbogart, president of the Smythe company, announced. The merger is to become effective January 3.

Alling & Cory, founded in 1819 in Rochester, claims to be the oldest paper distributor in the United States. Executive offices are in Rochester, and sales service organizations including warehouses are located in Rochester, Buffalo, Syracuse, Utica and New York, as well as in Pittsburgh and Harrisburg, Pa., and Cleveland and Akron, Ohio.

The Smythe company, founded in 1900, distributes the products of nationally known manufacturers of papers for the graphic arts industry and industrial and building uses in the eastern area of Pennsylvania, southern New Jersey, and Delaware.

The Smythe company will become a division of Alling & Cory. Mr. Smythe will be elected a director and vice president of Alling & Cory and general manager of the Smythe Division.

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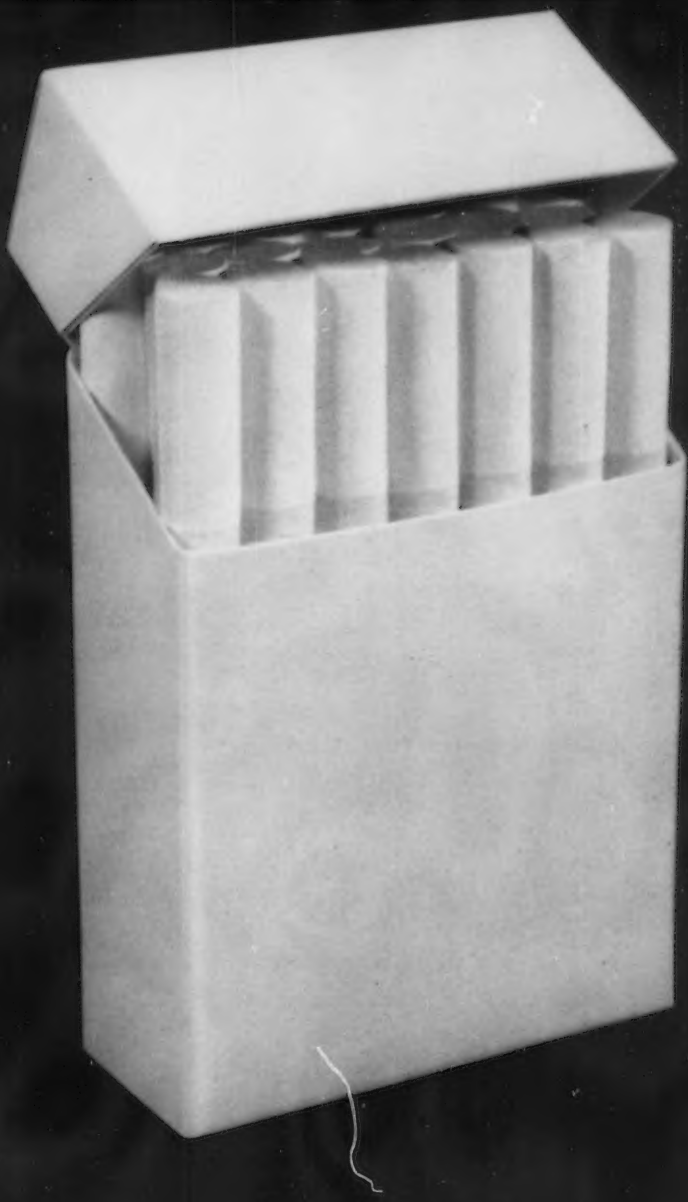

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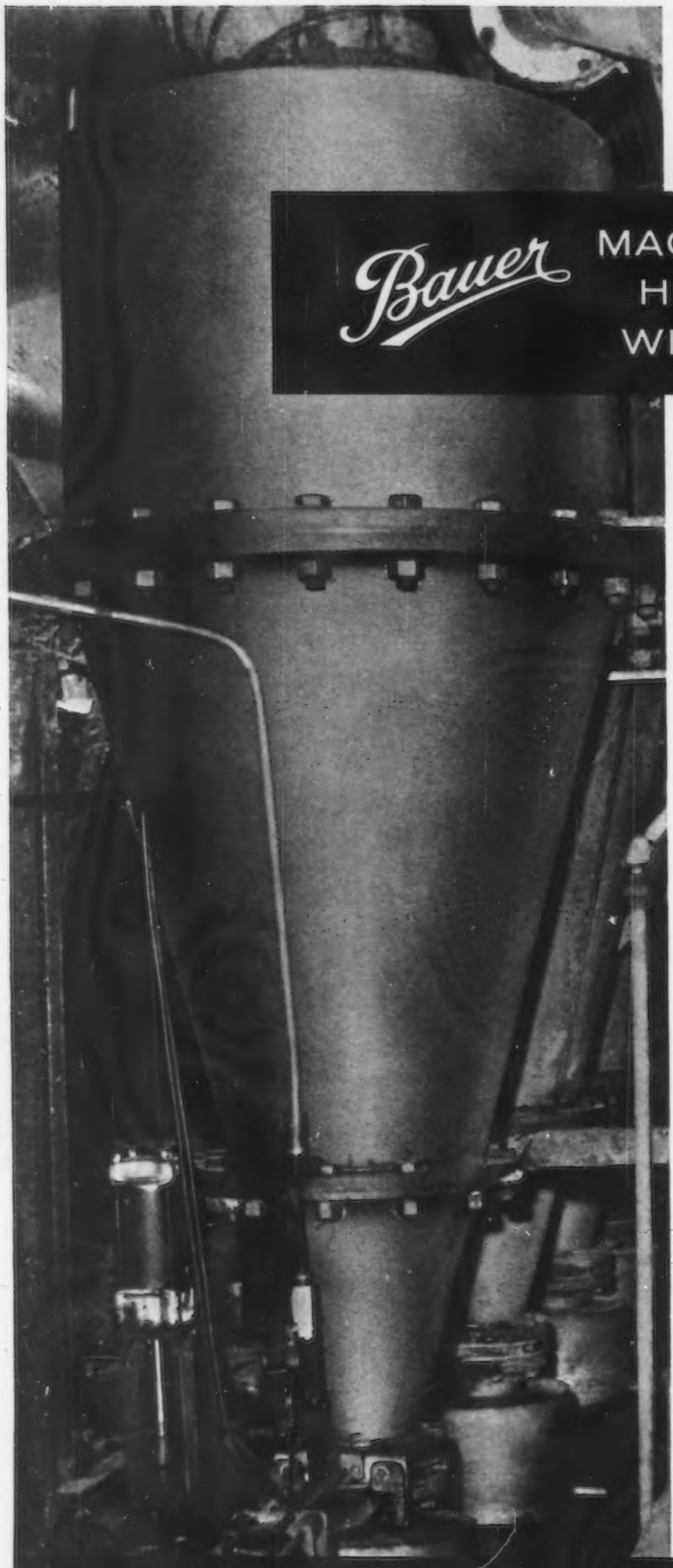

Bauer MAGNA* CLEANERS HELP INCREASE WIRE LIFE 60%

Wire life of only 4½ to 5 days was an expensive problem at a large southern kraft board mill.

To correct this situation, two things were done. First, the board machine was equipped with a Flo-Vac to reduce drag on the wire. However, sand, pipe scale, inorganic grit and other abrasive material in the pulp continued to shorten wire life drastically.

Next, eleven Bauer Magna Cleaners were installed. Nine of these 46" diameter units, which stand eleven feet high, clean stock for the base sheet. Two deliver to the secondary headbox. As soon as the cleaners were installed wire life jumped to 7½ to 8 days—an increase of 60%! Mill personnel estimate this represents a saving of 18 wires a year on one machine, or approximately $63,000, not including labor costs or down time!

These efficient, low pressure cleaners handle a large volume . . . they could help save money in your mill, too. Ask for details.

*

Magna is Latin for big. Nearly 46,000 GPM . . . that's the total capacity of eleven Bauer Magna Cleaners in the installation described above.

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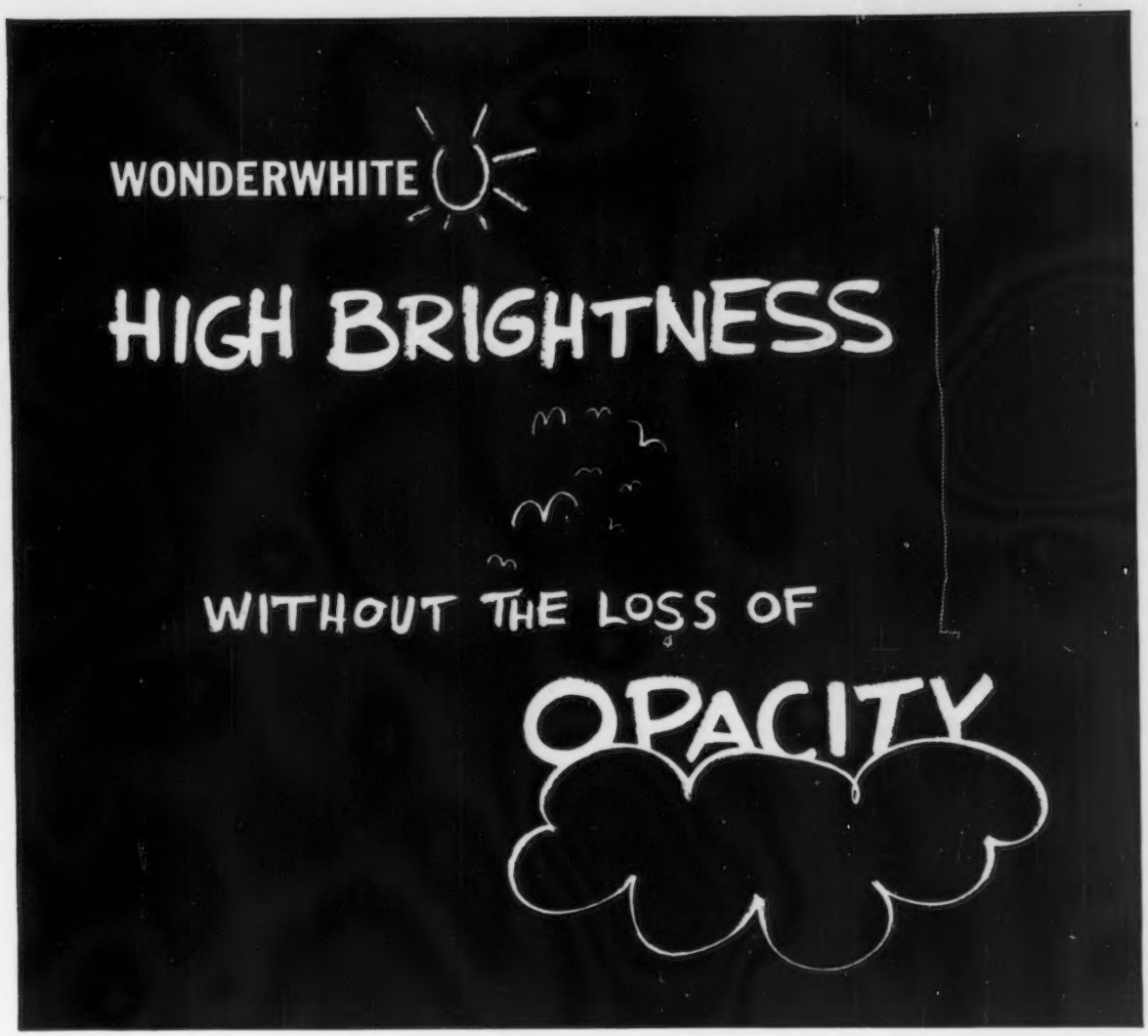

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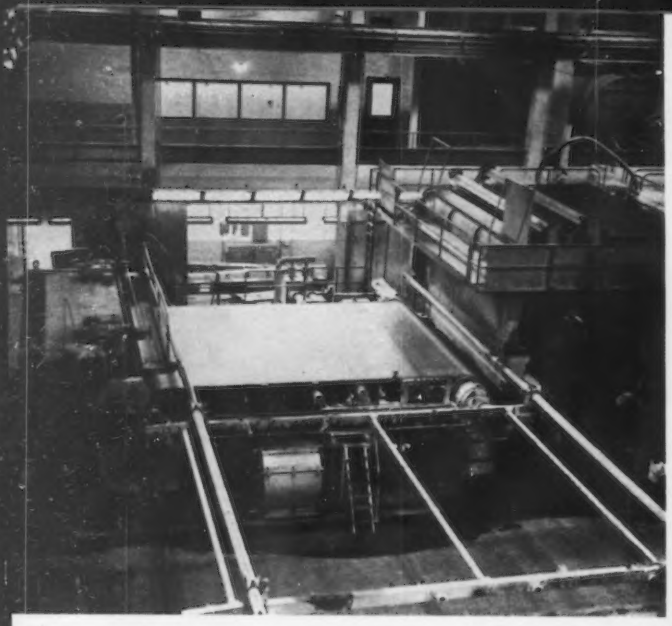
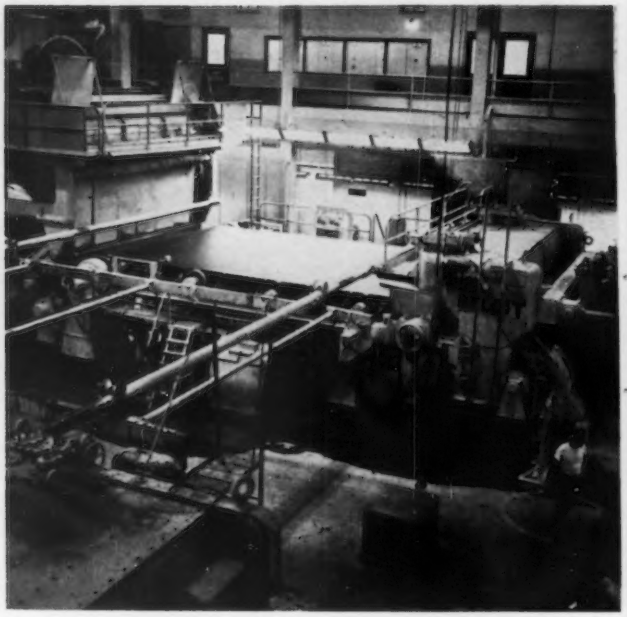


Overhead view of towel machine's wet end.

High speed tissue machine in action!



New concepts in stock preparation and some unique innovations in tissue and towel making are shown as . . .

Scott Reveals Details of Mobile Tissue Operation

Paul D. Van Derveer,
Associate Editor,
Paper Trade Journal

Tissue mills are seldom opened for public inspection due to the intensely competitive nature of this type of operation. However, Scott Paper Co. chose recently to bare the details of its most modern tissue operation to reporters from the trade press. One of the most modern and efficient tissue mills in operation in the world today, the new mill at Scott's Mobile, Ala., plant includes two paper machines plus the necessary finishing equipment to produce Scott's line of three bathroom tissues, as well as ScotTowels and a number of Scott industrial packaged products. Designed to become the principal producer of Scott trademarked products for distribution throughout the Southern markets, it has one tissue machine and one towel machine with a total average capacity of 200 tons daily.

It is but one part of the Mobile operation since this is also the site of a large specialty paper mill producing some 400 tons per day of high quality kraft papers in bleached and unbleached grades. The Mobile plant originated in 1939 when Hollingsworth & Whitney Co. began construction of an integrated kraft pulp and paper mill there. The pulp mill went into operation in 1940, and the following year production was started in the paper mill. At that time the mill's facilities included two paper machines, one a fourdrinier, the other a cylinder machine. A pulp dryer and finishing equipment were also brought into operation. An expansion program, begun in 1949 and completed in 1952, increased pulp production to 420 tons per day and paper to 340 tons per day. Bleaching facilities were greatly expanded.

The plant became part of the Scott organization in October 1954, when Hollingsworth & Whitney merged with Scott. The merger also included an integrated pulp and paper mill at Winslow, Me., and a groundwood pulp mill at Madison, Me.

Construction of Tissue Mill

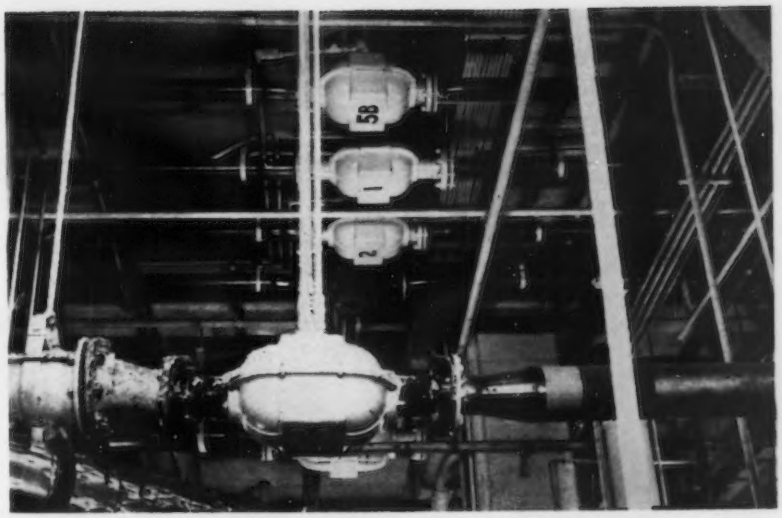
Construction of the new tissue mill was the first major expansion of the plant after the merger and was started in 1956. With the decision made to locate the new mill on swamp land between the company's specialty mill and the Mobile River, it was necessary to construct an 18 foot high dike and then consolidate the area within the dike with hydrafill obtained from the river bottom adjacent to the property. Next, more than 4000 concrete piles were set to support the foundation.

This paved the way for construction of the tissue mill and the finishing building adjoining it. The overall paper mill building is 135 feet wide by 342 feet long and has a storage dock 36 feet by 135 feet for dry pulp at the wet end of the building. Inside, a mezzanine extends along three sides with the mezzanine at the building wet end being 50 feet by 135 feet in size while the side mezzanines are 25 feet wide by 292 feet long. The finishing building which is connected to it has a basement and two floors and is 160 feet by 210 feet in size. The project was completed in 1959 with the first machine starting operations in March of that year and the second in April.

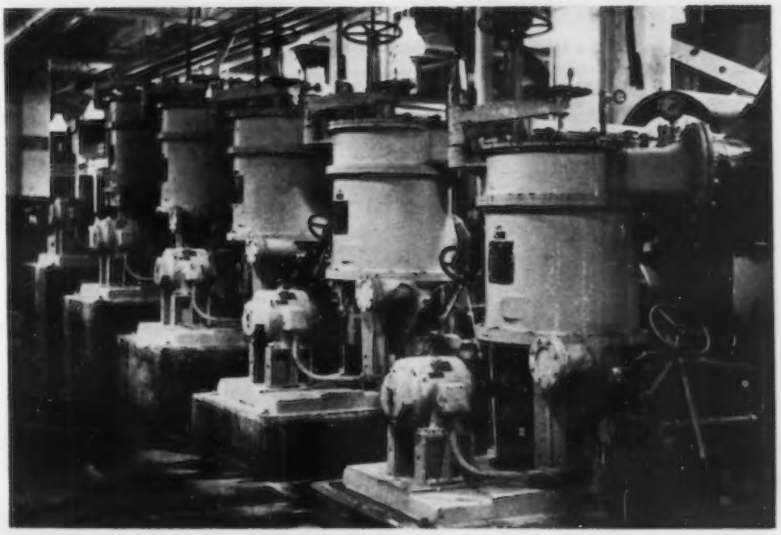
Stock Preparation Continuous

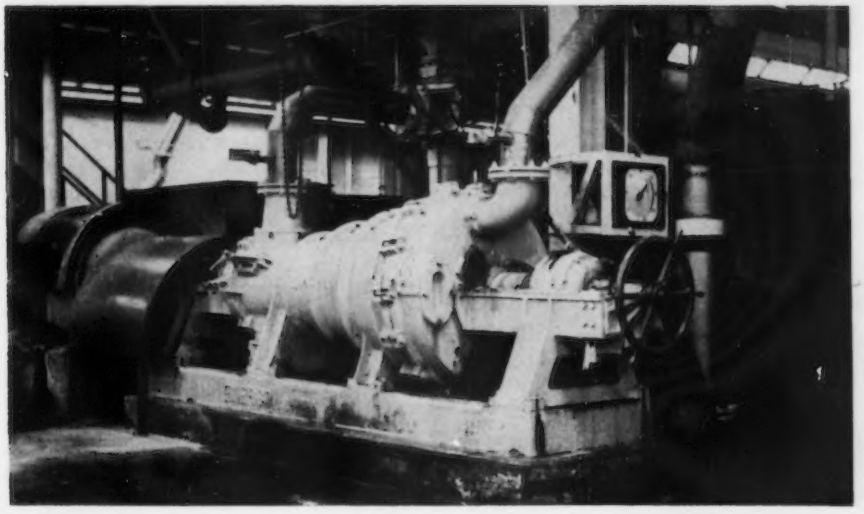
A significant feature of this operation is that stock preparation for both the tissue and towel machines is continuous. It is also extremely flexible in order to supply desired proportions of hardwood, kraft, sulphite, and groundwood pulps as well as broke from the machines and finishing areas.

Hardwood pulp, made by the kraft process, is piped over directly from the pulp mill in slush form at about 3.7 per cent consistency. Having a brightness of 80, it is used in the furnish in proportions of 0-50 per cent depending on the end product. The Mobile pulp mill also supplies pine kraft to the tissue mill's stock preparation area, but in this case, in dried, baled form. Two grades of pine kraft pulp are used, one of 63 brightness, the other 85 brightness. Bleached sulphite pulp is received in baled form from Scott's Everett, Wash., mill, and 100 per cent air dried groundwood in boat shipments of 1500-2000 tons is obtained from



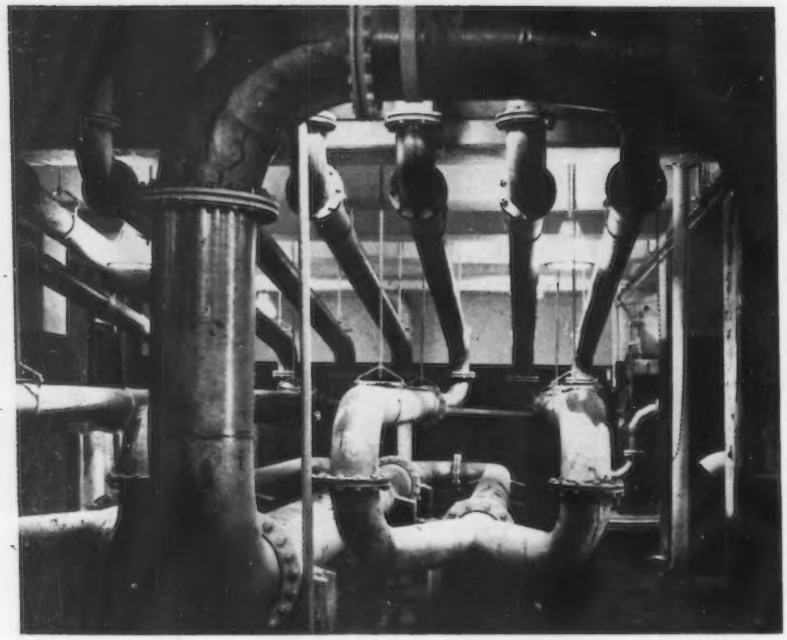
Feature of stock preparation system is method of blending several stocks. Looking towards ceiling, we see numbered magnetic flow meters proportioning stock to blending chest.





Selectifier screens on No. 6 are last step before entering headbox.

Machine jordan for No. 5, the towel machine.



Basement view below tissue machine shows how stock diverges from one large pipe into manifold piping to headbox.

Québec North Shore Paper Co. in Canada.

While this is the current lineup of pulps used in stock preparation for tissue and towel, the Scott people don't hesitate to say that their objective is to work towards the utilization of only the pulps produced at Mobile, and to use them in slush form direct from the pulp mill. They feel that it is entirely feasible to eliminate pulp drying before preparing the stock for making tissue, as they have done with hardwood pulp. They are also directing their efforts toward greater use of hardwood pulp.

At present though, the operation is such that the kraft pine pulps, as well as the sulphite and groundwood are repulped at about 4-4.5 per cent consistency in Morden Slushmakers and put into storage chests. These baled pulps are slushed in the desired proportions for a given grade and machine. The slushed hardwood pulp goes directly to a separate storage chest. There are two broke storage chests, one chest for hardwood pulp, and three chests for mixtures of the other pulps.

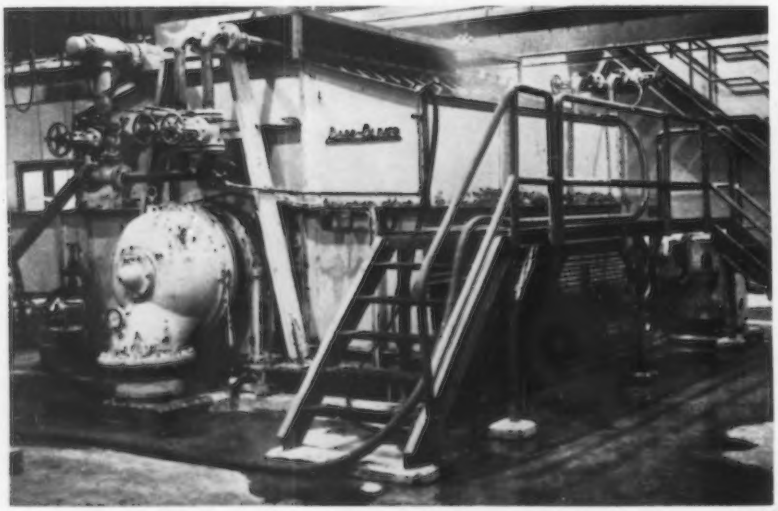
Following the storage chests, the various stocks are each controlled in consistency to about 3.6 per cent with Fischer & Porter in-line consistency regulators, and then flow to a blending tank. The stocks are proportioned into the blending tank by Foxboro magnetic flow meters and control valves.

A noteworthy feature here is that selective refining can be done on various components of the stock before it is blended in order to develop the best properties. This prerefining which is accomplished with various combinations of a No. 2 Claflin and two Jones Royal jordans is usually done on the kraft, sulphite, groundwood mixtures, and not on the hardwood pulp.

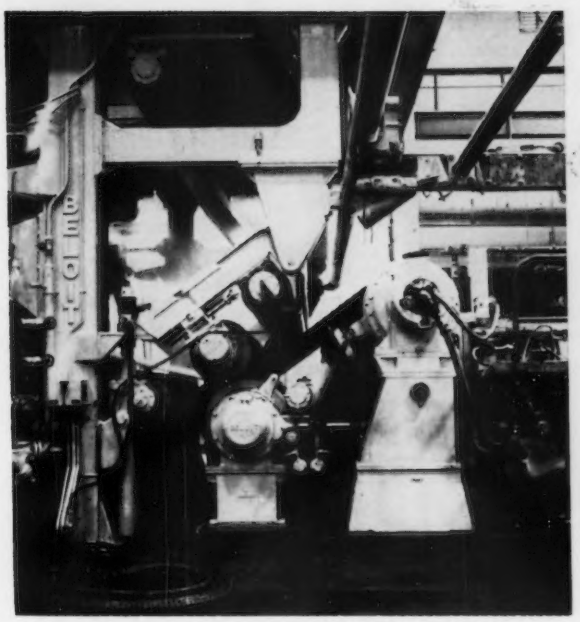
The total pulp requirement of each machine is supplied from the respective blending chests, and the necessary proportions of stocks in these chests are maintained by a ratio control system so that as the level in the chest drops, fresh stock is metered in, in the correct percentage. A similar ratio control system is utilized in metering dyes and chemicals into the system.

The blended stock goes to a mixed stock storage chest, then to a saveall chest from which sweetener is taken to the Dorr-Oliver disk type saveall, and from the saveall chest it is pumped through a Trimbey air operated, automatic consistency regulator controlling basis weight to machine chest. The stock is next pumped to the machine jordan which in the case of the towel machine is an Emerson 4K, and for the tissue machine an Emerson No. 2. From this point the stock which is at about 3.2 per cent consistency goes to an 11,500 g.p.m. fan pump, then at a lower consistency to five 24P Selectifier screens and through manifold piping to the headbox. On the towel machine the solids content at the headbox ranges from 15 lbs.-40 lbs. stock per 1000 gallons, depending on grade.

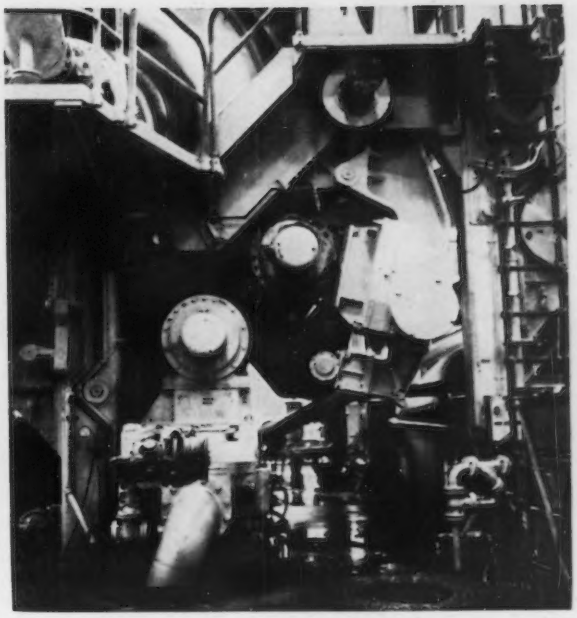
Stock preparation for both machines is controlled primarily from a single, centralized, U-shaped panel containing various recording and controlling instruments. From this panel, the panel man, who is in charge of the operation can make the necessary adjustments for the grade of paper being produced. Other personnel in the area include his assistant, a furnish man who handles the slushing of baled pulp, and a broke man.



Disk type saveall for each machine is located on mezzanine.



Pick up arrangement of tissue machine shows sheet being picked off wire just ahead of the wire turning roll.



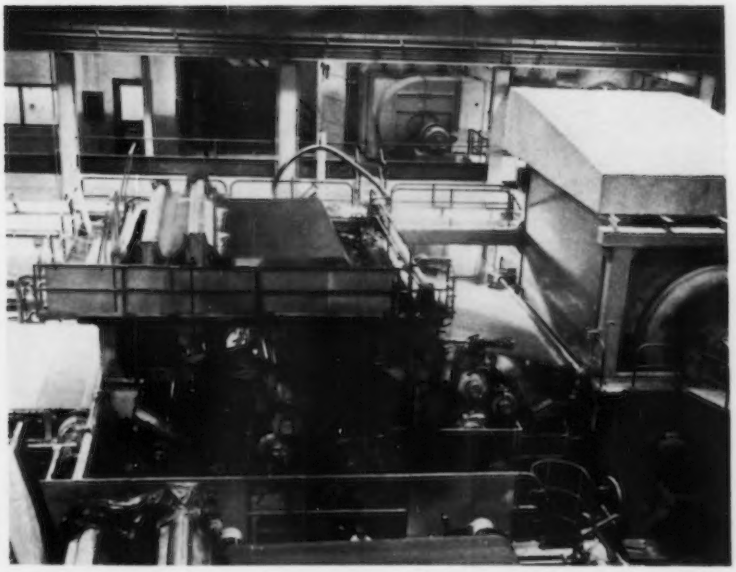
No. 6 has two press rolls, solid, with drilled rubber faces. This innovation is said to make possible an increased speed.

Tissue Machine Aims for Quality First

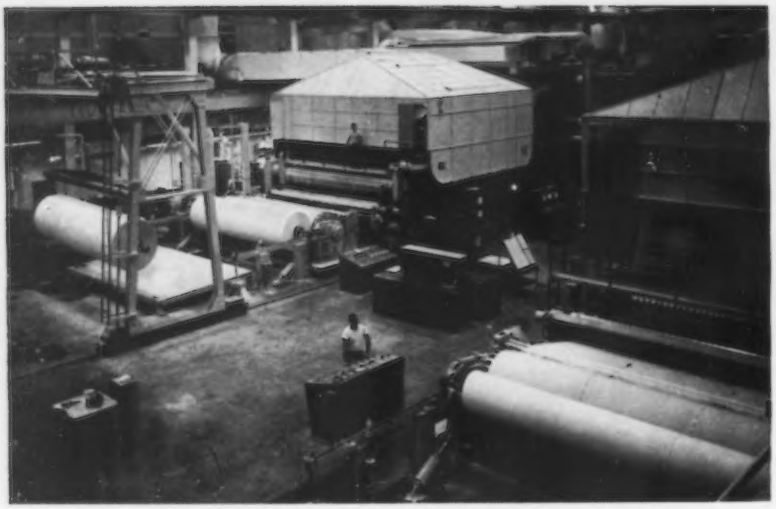
The manufacture of tissue is generally considered to be a very high speed operation, yet Scott's Mobile people do not claim any super speed for their No. 6 machine. They have attained up to 2700 f.p.m. on No. 6, and currently average about 2300 f.p.m. George Ellis, production manager for tissue, says, "We strive for efficiency more than anything else. If you can't produce without breaks, it's not efficient." Left unspoken was the obvious, that Scott aims for quality first, high speed production second.

The tissue machine which makes Scott trademarked tissues in a basis weight range of 10.0-13.3 lbs./ream (24 x 36-480), has a rated capacity of 110 tons per day. It has a pressure headbox with a Scott designed special slice and a suction breast roll. After this point, practically no water drains out of the sheet as it goes down the wire. The wire, 208 inches wide by 69 feet 7 inches long, is supported by four wire carrying (or dandy) rolls and there are four deflectors. There is one stationary suction box, and a suction couch. Beneath the wet

Press section and big Yankee on towel machine. In foreground is top of No. 6.



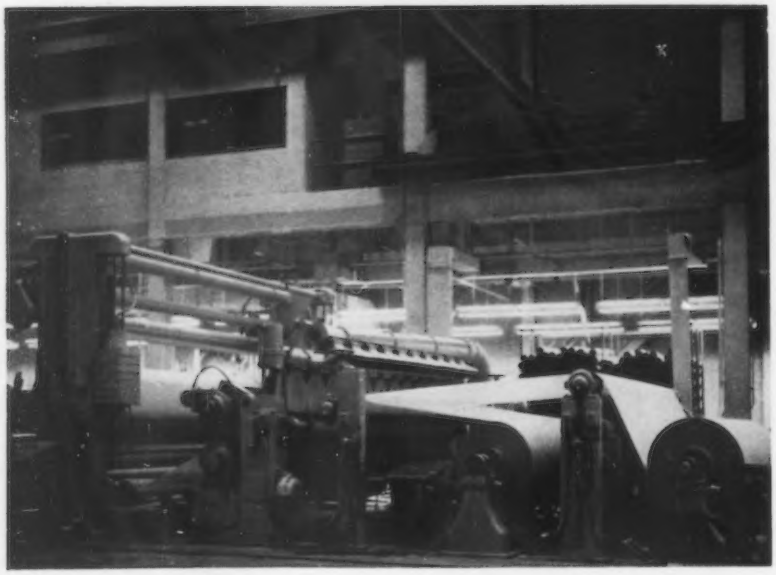
J. A. Shaler, paper mill superintendent, checks reel from towel machine.



The two machines shown above can produce in a single minute a ribbon of paper 195 inches wide and up to 3,000 feet long.

Drive side of No. 5 press section. Note ducts supplying filtered air to motors.

Calender rewinder, in line with No. 6, is used to make two ply rolls.



end are three functional rolls, a hand guide, a stretch roll and an automatic guide roll.

The sheet is picked up from the wire following the primary couch and just before the wire turning roll. It is then carried through a single nip first press with a 30 inch bottom suction roll, and a single nip second press with 39½ inch suction roll. Both presses have rubber covered top rolls. The sheet is next carried to the double pressure roll arrangement on the Yankee dryer. The pressure rolls are solid with rubber covered drilled faces, and are said to provide better water removal. They make possible a ten per cent increase in speed. The pick-up felt wraps every roll in the press section. The wet felt comes in at the first press and leaves at the second.

The Yankee dryer, 12 feet in diameter by 213 inches face, is covered by a closed hood. There are seven 60 inch diameter dryers, five of them paper dryers and the other two felt dryers. They are covered by a J. O. Ross open hood. The machine has both top and bottom dryer felts.

There is a single nip, vertical calender stack which is loaded by the weight of the roll and has relief loading. The reel will hold a maximum diameter roll of 65 inches.

In line with No. 6, is a Beloit calender rewinder which handles rewinding chores for both machines. Having a top speed of 3500 f.p.m., it is used to rewind into two ply rolls. It will take 60 inch parent rolls and will rewind to a diameter of 52 inches. It is equipped with a calender and shear cut slitters ahead of the wind-up, and is equipped with a drive similar to, but separate from, the paper machines. Power requirements are: 40 h.p. on the unwind, 85 h.p. on the calender, and 75 h.p. on the wind-up.

Auxiliary equipment includes four Nash vacuum pumps, a Mason-Neilan and Ross-Midwest-Fulton steam system, and a Jamar-Olmen ventilation system. Wire life incidentally averages 12 days. The paper machine crew consists of four men, a machine tender, back tender, third hand and fourth hand.

Towel Machine

The towel machine, No. 5, is very similar to the tissue machine, having the same general configuration of equipment. Producing Scott trademarked towels in the basis weight range of 16.8-33 lbs./ream (24 x 36-480), it has a rated capacity of 160 tons per day. It averages about 1400 f.p.m., although it has reached on

some grades 1700 f.p.m.

No. 5 has the same type headbox and slice, has the same size wire, and is also equipped with a Yankee dryer of the same size. Like the tissue machine, No. 5 also has a Beloit air guide for the wire section. However, it differs from the tissue machine in some respects which are noted below.

It is equipped with two stationary suction boxes at the wet end, instead of one. It has a single nip first press as did the tissue machine, but the second press has a double nip with a 40 inch suction roll. Top rolls are again rubber covered. The pressure roll arrangement is different in that there is only one, a suction roll 42 inches in diameter. No. 5 also has more dryers than No. 6; it has eleven paper dryers and four felt dryers. An additional vacuum pump is required for the tissue machine too, making a total of five.

Drive

Both machines have a General Electric electronic multiple generator sectional drive. A 1000 h.p. motor supplies power to the wire section, press section, Yankee and after dryer section of No. 6. A 1250 h.p. motor handles the same sections for No. 5. Smaller 100 h.p. motors supply power for the calender and reel of each machine.

The motor generator sets supply power to ten d.c. variable speed motors on each machine driving the following:

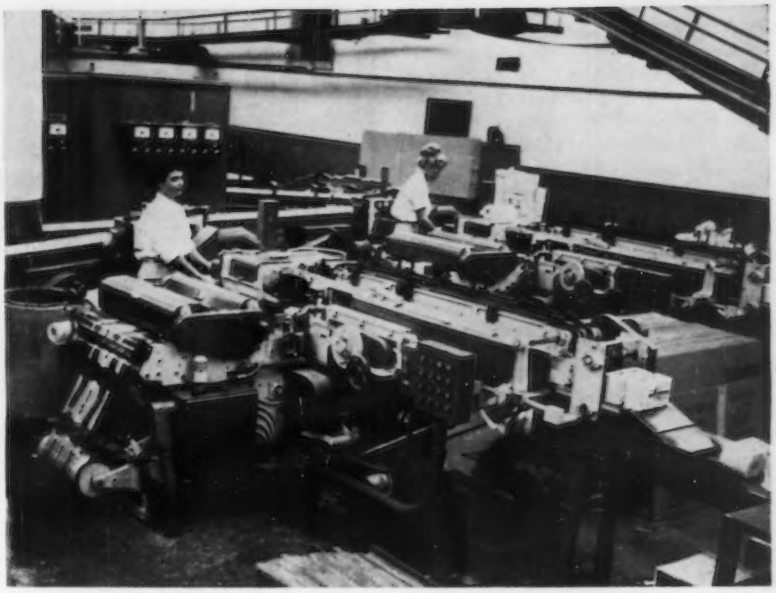
	No. 6	No. 5
Breast roll	60 h.p.	100 h.p.
Primary couch	60 h.p.	150 h.p.
Wire turning roll	60 h.p.	150 h.p.
First Press	150 h.p.	150 h.p.
Second press	200 h.p.	200 h.p.
Pressure rolls	100 h.p.*	100 h.p.
Yankee dryer	350 h.p.	350 h.p.
After dryers	100 h.p.	200 h.p.
Calender	40 h.p.	40 h.p.
Reel	40 h.p.	40 h.p.

* Not in use.

A total of 1480 h.p. is required for No. 5 machine. For No. 6 a total of 1160 h.p. is needed.

Broke

Broke chests are located beneath the Yankee dryer of each machine as well as dry broke chests under the reels. For No. 6, the tissue machine, the dry broke chest is used as a pulper. Also located in the basement below No. 5, the towel machine, is a Jones Hi-Lo dry broke pulper operating at 5.5 per cent consistency which is used to cook and re-pulp wet strength broke.



Here Scott's Soft-Weve tissue rolls are wrapped in polyethylene preparatory to shipping.

Finishing Area Features Modern Converting Equipment

Finishing areas for the tissue and towel machines' production are located in the finishing building which adjoins the paper mill. It has a basement and two floors and is 160 feet by 210 feet in area. Tissue converting operations are located on the first floor, towel converting on the second.

Tissue Converting

There are three tissue converting lines, one for Scott's two-ply soft-weave, another for ScotTissue, and a third line for Waldorf products. Cores for the various products are made here on the first floor by two Paper Converting Machine core winders and are fed automatically to the various converting machines as required.

Soft-Weve: Soft-Weve line has two continuous Paper Converting Machine Co. tissue winders trimming 63 inches, and utilizing two-ply tissue from the winder at the end of No. 6 machine. The winders produce fourteen 4½ inch wide tissue rolls, each containing 500 two-ply sheets. The rolls are ejected to a trough which dumps them on an inspection table. The inspector then transfers them to a conveyor carrying the rolls to the two polyethylene twin roll wrappers made by Battle Creek Packaging Machines and operating at the rate of 50-60 wraps per minute. From here the roll pairs go to two hand packing stations for case packing. The loaded cases are carried on a roller conveyor to a Standard-Knapp case sealer and then to the warehouse where they are stacked on pallets.

ScotTissue: The ScotTissue converting line has six continuous tissue winders of the same type as above. The winders are in pairs, one left hand, one right hand machine, so that one operator can handle both. Two of these winders are set up in such a manner that they can be utilized to augment the production of any of the three tissue lines.

The same type of transfer and inspection method is used as on the previously described line and the rolls are then conveyed to four dial wrappers. These are high speed, single roll, kraft wrapping machines designed by Scott and made by Crown Cork & Seal. They are capable of wrapping 200 rolls per minute. The rolls each contain 1000 sheets of single ply tissue. The rolls are next fed by conveyors to a Standard-Knapp case packer and the cases go through a Standard-Knapp case sealer to the main line conveyor to the warehouse.

Waldorf: The Waldorf line has two continuous winders and the same type

Worker is shown operating one of the Mobile mill's multifold towel finishing machines.

of transfer and inspection as above. After inspection the rolls go to a four-pack Hayssen wrapper, capable of 40 wraps per minute. They are then hand case packed, then go to a case sealer and the warehouse.

Waldorf tissue is also wrapped in single rolls by two automatic C. A. Lawton wrappers, then flows through a conveyor system to a snake table (an accumulating device) for hand packing, then to the four-pack conveyor line to the case sealer and the warehouse. Another 4-pack Hayssen wrapper is located in this area which is fed from the swing winders and which discharges to the first mentioned 4-pack conveyor line.

One of the problems in the tissue operation is in providing cases containing mixed colors. To mix the colors, cases containing individual colors are tack sealed then reopened in the warehouse, repacked and then sent to another case sealer. The Waldorf tissue like the ScotTissue is single ply direct from the tissue machine. All winders provide shear cut perforations.

Towel Converting

Paper from No. 5 machine is converted on the second floor to towels in roll or folded form. Cores are provided by a Dietz hydraulic core winding machine.

Roll towels of 150 count or 250 count for household use are produced on four 66 inch trim Paper Converting Machine continuous winders making six 11 inch rolls. They dump to inspection tables, then are conveyed to four single roll F-9 Package Machinery wrappers capable of 55 wraps per minute. The rolls are next conveyed to a hand case packing operation, then to a case sealer and down to the main line conveyor.

Three leaf folded towels are produced on a multifold machine, coming out of the machine in bolt form the full width of the parent roll. A kraft wrapper is then put on by hand and the bolts are palletized. The bolts are cut to 11 inch widths in a hand operation, packed in multiwall bags by hand, hand sealed and conveyed to the main line conveyor.

Scot Dri-Tones for wiping automobile windshields are made on a Paper Converting Machine vacuum interfolder which embosses, slits, folds and cuts the two ply parent rolls, then interfolds the towels. They are separated by hand and go to a Hayssen banding machine. They are hand case packed, then conveyed to a case sealer and the main line conveyor.

A Paper Converting Machine single fold interfolder is used to make another grade of Scott windshield wipers which are lighter in weight, but otherwise similar except in color to the blue Dri-Tones. These are banded and case packed by hand, then go to the same case sealer as the Dri-Tones.

Scott UHA towels for industrial use are made on an automatic folded towel machine designed by Scott in 1924. Using a single ply parent roll, this machine embosses, slits the sheet into three webs, half folds, C folds, then joins the three webs and cuts off to sheet length. The sheets are counted, separated for individual packages, compressed and then held in position while an operator slides a chipboard sleeve on the package. He puts it on a conveyor, it is hand packed, then conveyed to a case sealer and to the main line conveyor.

Towels for industrial use. While operator slides chipboard sleeve on next unit, completed package moves along conveyor.

Shipping

The shipping building is 152 feet by 200 feet in area, providing more than 30,000 square feet of space. Two railroad spurs used for receiving carload shipments of vital supplies and baled wood pulp are located adjacent to the east wall of the tissue mill. The third railroad spur runs directly into the shipping building

and is utilized for the loading of finished products into boxcars for shipment to distribution centers or direct to customers.

Finished cases of Scott trademarked brands are conveyed to the shipping department by an overhead conveyor system. Cases of finished products are temporarily accumulated by respective brands in storage areas or they are loaded directly from the conveyor into motor trucks or boxcars.

The outbound spur, located on the east side of the shipping building, will accommodate four boxcars. Five truck bays are provided for motor trucks.

Top Quality Scott's Aim

Scott is extremely quality conscious and very carefully separates its quality control people from external pressures caused by considerations other than actual quality of the product. Scott has consumer representatives at each mill who have complete authority to reject or accept the various products of the company. As far as the mill is concerned this man is representing the public. The chief consumer representative at each mill reports directly to the company's director of product standards in Chester who reports to the administrative vice president.

Scott also has managed to imbue its workers with a spirit of self-inspection, meaning that each worker checks the quality of his own work and then does something about it if it is not up to par. The self-inspection idea is brought out in an initial training program and is followed up by supervision. This cooperative attitude of the workers is probably the company's best guarantee of a quality product.

Existing Pulp and Paper Mill Produces Specialty Papers

The tissue mill is only one phase of Scott's operation at Mobile. Located at this site is a pulp mill producing an average of 575 tons per day and a specialty paper mill with an average daily production of 400 tons per day. Hollingsworth and Whitney papers are produced here.

There are three specialty paper machines producing high quality kraft papers in bleached and unbleached grades. No. 1 is a 186 inch wide machine producing 175 tons per day of multiwall bag, Expanda Kraft extensible paper and gumming paper in a 40-100 lb./500 basis weight range. No. 2 is a cylinder machine which produces can stock, carton stock, folder stock, tag, stencil, lid board and 2 color pattern papers at the rate of 80 tons per day. No. 4 is a 176 inch wide fourdrinier producing 165 tons per day of coating base, can stock, bag, tag, index and off-set. Also located here is a 93 inch wide pulp dryer which is used to turn out 120 tons per day of pine and hardwood baled pulp.

The pulp mill which utilizes all grades of southern pine as well as southern hardwoods, gum and oak, has a total of six barkers, four of which are for pine and two for the hardwoods. There are two chippers and one rechipper. Chip storage capacity totals 570 cords and another silo of 250 cords capacity is under construction. Purchased chips amounting to 20 per cent of the mill's production are also used here.

All pulp is produced by the kraft process. There are seven existing pine digesters of 65 tons per day capacity each, and two existing hardwood digesters of 85 tons capacity each. Two blow tanks of 20,000 cu. ft. capacity each are for pine and another of the same size is for hardwood. There are three washer lines, two for pine, one for hardwood.

There are two bleach plants, one producing 180 A. D. tons per day of 80 color hardwood and a second for pine. After chlorination, the pine plant is split into two sections to produce 85 color and 63 color simultaneously. The total capacity is 380 tons, within which the tonnage of either grade can be varied at will up to a maximum of 300 tons per day of 85 color or 270 tons per day of 63 color pine.

The hardwood is bleached in six stages which are: chlorination, caustic extraction, calcium hypochlorite, caustic extraction, calcium hypochlorite and sulphur dioxide. The 85 color pine bleaching is in five stages: chlorination, caustic, calcium hypochlorite, caustic and chlorine dioxide. The bleaching sequence for 63 color pine is chlorination, caustic and calcium hypochlorite.

More Expansion on the Way

Scott is currently in the midst of another multi-million dollar expansion program at its Mobile plant. The initial phase of the vast building program launched in July 1959 has been concluded and contractors are currently completing a major structure which will house the firm's new paper machine and the necessary finishing equipment. John W. McNichol, general manager of Scott's Southern Division operations, recently announced that the two-year construction project is progressing on schedule and should be completed during the second quarter of 1961.

The expansion at the Mobile plant —estimated to cost in excess of $20 million when completed—is designed to increase papermaking capacity of the firm's Hollingsworth & Whitney specialty papers by 70,000 tons annually. According to Mr. McNichol, the major phase of the construction program now under way will add another paper machine trimming 214 inches to the three which are now producing specialty papers for business and commercial use. The new machine will manufacture fine quality light-weight printing papers, as well as converting specialty grades.

Although construction of the paper mill building is still in progress, the basement and operating floor have been completed and contractors have already started to assemble the huge paper machine. Nearing completion is a new 45,000 square foot shipping warehouse which will accommodate eight freight cars. The design of the building provides seven bays for motor trucks and a railroad spur which runs directly into the warehouse.

Additional primary power and steam distribution facilities, including a new 250,000 pounds-per-hour power boiler, have been completed and are scheduled to go into operation in late November. The expansion includes modernizing the specialty paper finishing room and additions to the waste clarifying system and existing pulp mill, including a new 1,000-foot long woodyard flume, three digesters, a chipper, chip screens, a chip storage silo, screens, evaporators and causticizing equipment.

ACKNOWLEDGMENT

We hereby gratefully acknowledge the courtesy and cooperation of Scott's management and technical staff at Mobile whose assistance made this article possible. Responsible in large measure for the material presented here are: G. E. Ellis, production manager — tissue; W. S. Spiller, technical superintendent — tissue; W. H. Herman, acting plant engineer; and H. P. Meuller, community relations manager.

Slight Drop in Sales—
Big Drop in Earnings

Some up, most down! That summarizes the sales and earnings of paper companies in the third quarter and first nine months of 1960.

John Surveyor

Although sales generally were off slightly or steady, profits of most paper companies continued the downward trend that became apparent in the second quarter. The declines whittled away at gains made earlier in the year with the results that profits at the end of the first nine months were less favorable, comparatively speaking, than at the end of the first half. The lower earnings reflected a downward trend in the general economy, a concurrent slackening of activity in the paper industry and a continuing condition of excess productive capacity that made price increases difficult, if not impossible, to obtain.

Figures tell the tale. Of some 40 companies surveyed in the second and third quarter, 17 reported that their second-quarter earnings were higher than in the corresponding period of 1959; this number dwindled to 15 by the end of the third quarter. Twenty companies reported that second-quarter earnings were lower than a year earlier; 22 reported lower earnings in the third quarter.

The sales picture was somewhat more encouraging, although increases apparently had little effect on earnings. At the end of the first half, 29 companies reported that sales were higher than a year earlier, five reported lower volume, and one was unchanged. During the third quarter, 18 companies scored sales increases while 13 fell behind year-ago levels; two were unchanged. At the end of the first nine months, 30 companies had higher sales than a year earlier, four were lower and two unchanged. This showed litle change from the first-half results.

Size of Shifts

Of more significance was the size of the shifts. The gains usually were smaller and the declines were larger than in the second quarter. Most companies either failed to post increases comparable to those earlier in the year or posted declines where they previously had shown improvement. In terms of sales, seven companies did better than they had earlier while 25 did worse. Profit-wise, eight companies improved their position while 27 fared less well.

Principal Factors

The factors affecting sales and earnings were substantially the same as in the second quarter although they appeared to be exerting more of a downward pull. Production was still running ahead of a year ago but less so than earlier in the year. With the introduction of new additions to productive capacity, operating rates trailed off from year-earlier levels.

Prices were virtually unchanged and costs were higher. This prompted frequent references to the "cost-price squeeze," comments that were rather scarce last year but in full bloom during recession-tinged 1957 and 1958.

Which Economist?

The general economic situation during the third quarter was uncertain to say the least, a condition that still prevails to some degree. Depending on which economist you listen to, the economy is on a "plateau", the "precipice" of a further decline or the "foothills" of an upward recovery.

If the downward dip is not arrested and continues into 1961, paper manufacturers may have to turn their attention away from the problem of higher prices and concentrate on the problem of lower prices. It seems likely that they will have to work harder and sell harder if there is to be any improvement in operations.

The third-quarter performance of paper companies was not too surprising in view of production figures that had been issued earlier. In the first nine months of 1960, the industry produced a record 25,900,000 tons of paper and paperboard, an increase of two per cent over the corresponding period last year. The percentage gain was much less than that posted earlier in the year. Sales held fairly steady at an annual rate of $12,500,000,000 against $11,700,000,000 a year earlier. Lower operating rates, however, put profit margins under renewed strain. Rates at paper mills have trailed the year-ago figures for the last four months. In paperboard, where mill rates are inflated by being based on a six-day week when many machines operate seven days, rates have trailed the year-ago figures for five months.

Fourth Quarter?

Statistics of this kind do not seem to indicate that fourth-quarter operations will help to bail the industry out of a not-too-attractive profit situation. The fourth quarter generally is a healthy one but at this point it would appear questionable whether it will make much difference in the earnings picture for the entire year.

Here are some of the more interesting developments disclosed by third-quarter reports from a representative group of paper producers.

International Paper, biggest in the business, reported a 17.8 per cent decline in third-quarter earnings (excluding nonrecurring income), with net income of $15,205,082 against $18,502,000 in the 1959 period. Profits in the first nine months of 1960 slipped 11.2 per cent to $52,091,000 from $58,672,000. Sales of $768,836,000 in the first nine months were down only $4,000 from a year earlier but third-quarter volume dropped 5.1 per cent to $249,774,000. A large part of the generally poor showing was believed to be attributable to the company's stake in the lumber and plywood business, which has been in worse shape than the paper industry

this year. The I.P. report said "the low point for both sales and earnings was reached during July." Apparently confident that the trend would continue, the company raised the fourth-quarter dividend, declared a two per cent stock dividend and announced plans for a three-for-one stock split.

St. Regis Paper, also beset by depressed lumber and plywood markets as well as the costs of consolidating another group of new acquisitions, reported a drop of 24.3 per cent in earnings for the first nine months. The latest figure was $16,766,000 against $22,144,000. At the end of the first half, earnings had been down 16.8 per cent from a year earlier. The company predicted "an improving trend" in sales and profits during the fourth quarter but warned that results for the entire year might be about 30 per cent less than in 1959.

Crown Zellerbach, which operates in many of the same fields that International and St. Regis do, maintained a firm and imperturbable earnings course. Net income in the third quarter was $10,313,000, up 5.9 per cent from a year ago. Sales rose 5.4 per cent to $143,033,000.

Scott Paper also continued on its merry way, posting record sales for the twelfth consecutive quarter. Earnings of $6,431,000 in the third quarter were up 10.6 per cent from a year earlier, just slightly less than the relative gain scored in the second quarter. Nine-month profits of $19,833,000 were up 12 per cent from the 1959 period. Thomas B. McCabe, president, reported that sales of trademarked products in the final four weeks of the third quarter were the highest for any month on record.

Less fortunate were **Mead** and **Union Bag.** Mead's third-quarter earnings were down 13.5 per cent to $3,648,000 while Union Bag dipped six per cent to $4,322,000. Sales of both showed little change from a year ago.

Champion, another industry giant, recovered nicely from a decline of 16 per cent in earnings during its first fiscal quarter, chalking up a gain of 14.3 per cent to $2,005,000. Sales advanced 11.4 per cent to $54,708,000.

Diamond National, whose 62.3 per cent gain in profits during the second quarter was the best in the industry, came back to earth with a more modest rise of 14 per cent in the third quarter. Sales, meanwhile, dipped 4.7 per cent, indicating the company was getting more mileage out of its sales dollars. The question is whether the change in command that followed the merger with U.S. Printing and Lithograph can continue to produce good gains.

Third-quarter sales of $85,035,000 by **Container Corp.** were virtually unchanged from a year ago, reflecting the static situation in box and carton markets. Net income, however, slumped 16.1 per cent. Earnings in the first nine months were off 3.6 per cent on a 1.9 rise in sales.

Standard Packaging, still digesting its April merger with Brown & Bigelow, posted a 4.1 per cent gain in sales and a 4.5 per cent decline in profits in the 40 weeks ended on Oct. 9. R. Carl Chandler, chairman, said most of the company's divisions had higher sales but that volume in some units declined because of inventory adjustments and lower prices. Sales of consumer products and food packaging materials were the main line-backers, he said.

Rayonier continued to have problems, with earnings down 30.7 per cent to $2,080,000 in the third quarter despite a slight increase in sales. Competitive price pressures against pulps and lumber were mainly responsible, the company said.

Allied Paper had the dubious honor of posting the sharpest decline in earnings with profits in the first nine months down to $114,000 from $939,000 (before a nonrecurring gain of $350,000) a year earlier. Arnold H. Maremont, chairman, said the decline was "more pronounced because Allied has increased its capacity in the face of a drop in demand."

Another sharp drop was recorded by **Fibreboard Paper Products,** where third-quarter earnings slumped 60.7 per cent to $554,000. Start-up costs related to the company's $25,000,000 expansion program, continued increases in costs and depressed demand for building materials were cited as contributing factors. Nine-month earnings of $1,839,000 were off 55.4 per cent from a year ago.

The earnings climate in New England was decidedly healthy. **Oxford Paper,** recovering at last from break-in difficulties with new equipment, raised third-quarter earnings to $477,000, a gain of 88.5 per cent from a year ago. A modest gain of 2.8 per cent in sales — to $18,076,000 — made the profit performance more attractive.

Brown, fresh from a revamping of its high-level executives, boosted quarterly earnings more than four times higher than a year ago, despite an 8 per cent decline in sales. Net income was $298,000 against $57,000 in the 1959 period.

Great Northern, the country's largest newsprint maker, posted a 60 per cent increase in earnings on a 9.3 per cent sales increase during the third quarter. Net income was $687,000. Probable source of the improvement: A 16 per cent increase in shipments of specialty papers.

Rounding out the New England picture, **S. D. Warren** registered income gains of 10.8 per cent in the third quarter and 11.8 per cent in the first nine months. Third quarter profits amounted to $1,211,000; nine-month earnings were $4,069,000.

The situation was reversed for two other fine paper producers. **Hammermill's** third-quarter profits dropped 48.4 per cent to **$291,000. Nekoosa-Edwards** reported quarterly earnings of $395,000, off 41.5 per cent from a year earlier.

Riegel Paper also came a cropper in the September quarter with profits down 44.7 per cent to $566,000. Nine-month profits of $2,099,000 were off 19.9 per cent from the 1959 period. Both declines occurred in the face of small increase in sales.

Federal Paper Board witnessed further attrition in its earnings position with third-quarter profits down 38.9 per cent on top of 29.1 per cent decline during the second quarter. "There are no present signs of an easing in this situation," John R. Kennedy, president, declared.

Paterson Parchment, one of a small number of vegetable parchment producers, said it was operating at virtually full capacity. Still, third-quarter earnings were down 44 per cent to $47,000.

Consolidated Paper Co. performed well, in a negative sort of way. The net loss in the third quarter was $189,000, compared with a deficit of $314,000 in the 1959 period. This reduced the nine-month deficit to $92,000 from $415,000 a year ago.

Equally gloomy was the situation at **United Board and Carton** where net income in the first fiscal quarter was $61,000, down 27.4 per cent from a year earlier.

How Gaspesia Achieved Tops in Bleached Sulphite Pulp Production

A revolutionary new chipper coupled with a new chlorine dioxide bleaching stage have resulted in a premium grade of sulphite pulp.

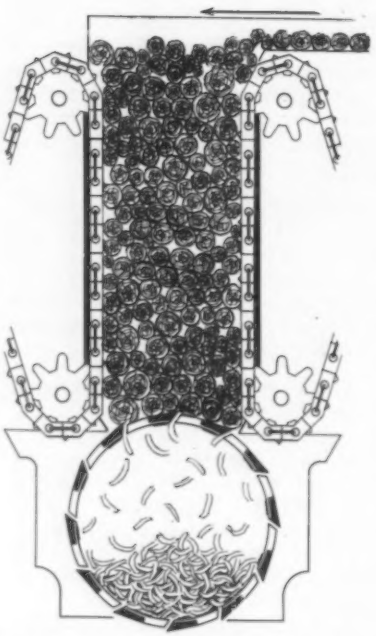
John C. W. Evans,
Editor,
Paper Trade Journal

Having heard of the unusual new chipper in operation at the Gaspesia Sulphite Co. in Chandler, Que., the editor made a trip to this mill specially to observe and study it. At the same time he inspected the new chlorine dioxide generating plant and improved bleach plant. Since development of the new chipper was to be officially unveiled at the meeting of the Technical Section, SPPA at Banff, Alberta, in September, the editor agreed not to publicize this development until after this meeting. The chipper is briefly described in the report of this meeting, which was attended by the editor, in our September 26 issue. Here we give more details of the chipping operation and a description of the chlorine dioxide bleach plant.

The New Chipper

It has been well known for some time now that conventional chipping methods produced a damaged chip which did not permit development of the optimum strength in sulphite pulping. This damage resulting from the compressive forces acting of the chip was first discovered by F. H. Yorston, Pulp and Paper Research Institute of Canada, and has subsequently been confirmed by other researchers in the field of sulphite pulping. The purpose of the new chipper is to remove thin slices of wood from pulpwood sticks, suitable for pulping with the minimum of compressive forces acting on the wood during chipping.

The new chipper was developed at research department of Anglo Paper Products which is the research department of the Anglo group of companies: Anglo Canadian Pulp and Paper Mills, Anglo Newfoundland Development Co., Gaspesia Sulphite Co. and Dryden Paper Co. The design and engineering were done by the general engineering department of Anglo Canadian Pulp & Paper Mills, Ltd. The basic principle as can be seen from the accompanying sketch calls for the feeding of logs from above down onto and parallel with a revolving drum fitted with knives running its full length. The knives are fitted with a leading and trailing sections so that first a series of chips are removed having beveled edges and then the remaining "lands" are removed by the trailing sections of the knives.



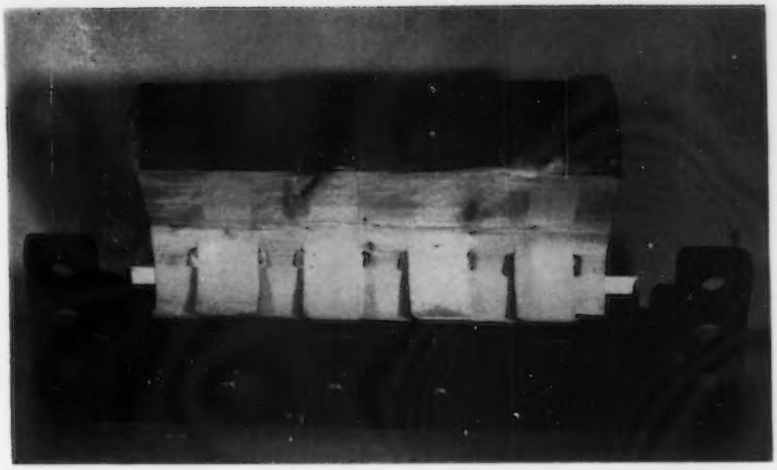
Method of feeding and operation of the chipper. (Sketch only).

Commercial Model

Following the development stages, two commercial models of the chipper were built and installed, one each in the sulphite pulp mills of Anglo Canadian Pulp and Paper mills and Gaspesia Sulphite Co. Both chippers have been in operation for nearly a year but company officials feel that the chipper is still in the development stage. In each installation a four-foot-long drum was used, to handle conventional pulpwood lengths. It was the Chandler chipper that was inspected by the author and the following remarks refer specifically to this installation.

The logs are fed to the drum in a magazine similar to the continuous type of chain grinder used for groundwood production. Since the logs should be fed down parallel to the axis of the chipper drum, this is accomplished by first using a speed-up roller conveyor operated so that the logs pile up alongside each other on a rubber belt feeding the top of the magazine which is kept substantially full at all times so that the logs do not have an opportunity to fall into the magazine and get crosswise. Chain feed is by an all hydraulic drive. There are 12 lines of knives around the circumference of the drum. Each line is made up of two knife holders each containing two foot straight edged back knives. Bolted to these back knives on four-inch centers are two-inch projecting knives with tapered wings. It is

Detailed papers describing the research program involved in development of this chipper are to appear in the November issue of Pulp and Paper Magazine of Canada.



How knives cut. Note leading and following chips.

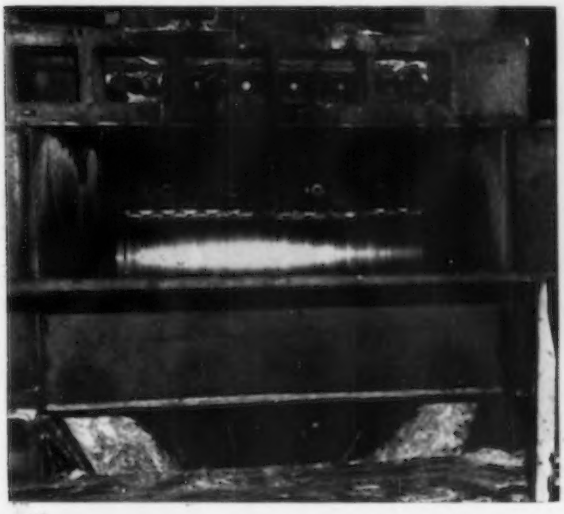
Close-up of new chips. Match book shown for size.

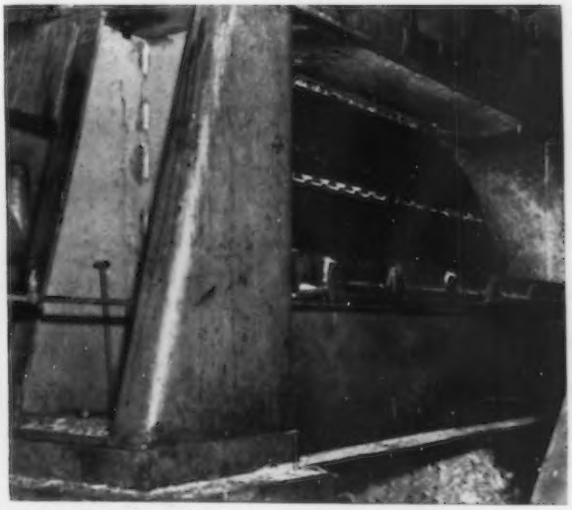
these projecting knives which remove the first cuts from the logs and the tapered wings provide the beveled cuts on the chips. The straight back knife then cuts away the lands left. The chips as they are being removed are slightly curved and pass inside the drum through slots immediately behind the knives. The drums are of heavy construction and are reinforced internally and at the ends. The chips pass out through openings at each end of the drum and fall onto a rubber belt below.

The drum is driven at 36 r.p.m. by a 200 h.p. - 1200 r.p.m. motor. The chipper operates at about 40 cords

New chips at left with regular chips in the right hand pile.

Below: Head-on view into chipper with screen removed.





Above: View of chipper from end opposite drive.

per hour but the author believes this could be considerably exceeded.

The noise produced is much less than by a conventional chipper. A finger bar arrangement similar but not identical to that in a Waterous grinder prevents thin pieces of logs from passing out of the magazine on the out running side of the drum. Chip size is approximately as follows: 0.150 inches thick, two inches wide and length depends on where the cut is being made in the log. (Standard terminology calls for a chip length to be the length along the grain.) No screens are used on these chips.

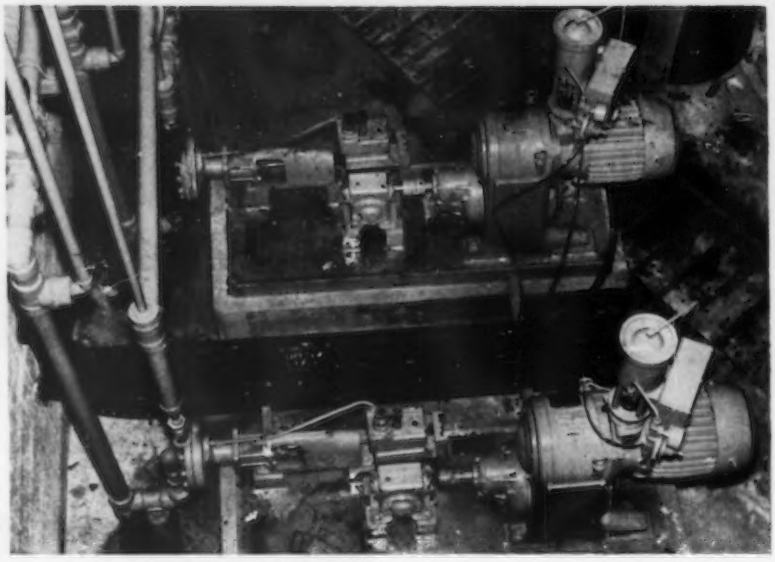
Chip Handling Problems

The long thin flat chips produced present special handling problems, particularly for an older mill with conventional overhead chip bins. The flat chips build up into interlocked layers which make their removal from the chip bins difficult and slow up digester charging. Three attacks were made on the problem at Chandler with considerable success. First a covered walkway with a peaked roof was suspended in the center and running the full length of the chip bins. The peaked roof prevents the chips arching in the bins unless the bins are filled well over this roof. The walkway provides a working platform for men when it is necessary to dislodge the jammed chips with poles. Also the slope of the bottom of the bins was changed to 45°. Lastly belt conveyors were installed in the bottom of the chip bins, running in each direction to the mouth of each digester.

Cooking Results

There has been some loss in digester capacity due to the fact that the chips do not pack as well. However, as experience is gained in handling and cooking the new chips this loss in capacity is being reduced. The uniformity of chip thickness has resulted in higher yield. There has been some reduction in screening losses particularly at the knotter screens. In fact it has been found possible to raise the chlorine number with no increase in screenings.

The chief purpose of the new chipping method is to increase the strength of the pulp. What results were obtained? Mullen has increased 10-14 per cent, tensile 10 per cent, fold 100 per cent, and tear remains about the same. It appears that as experience is gained with cooking the new chips that cooking times may be reduced and pulp quality further improved.



Sulphuric acid metering pumps feed generator.

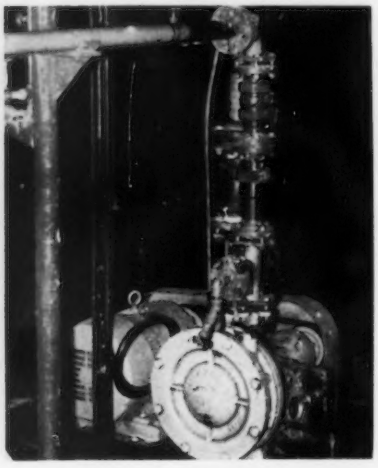
New Bleaching System

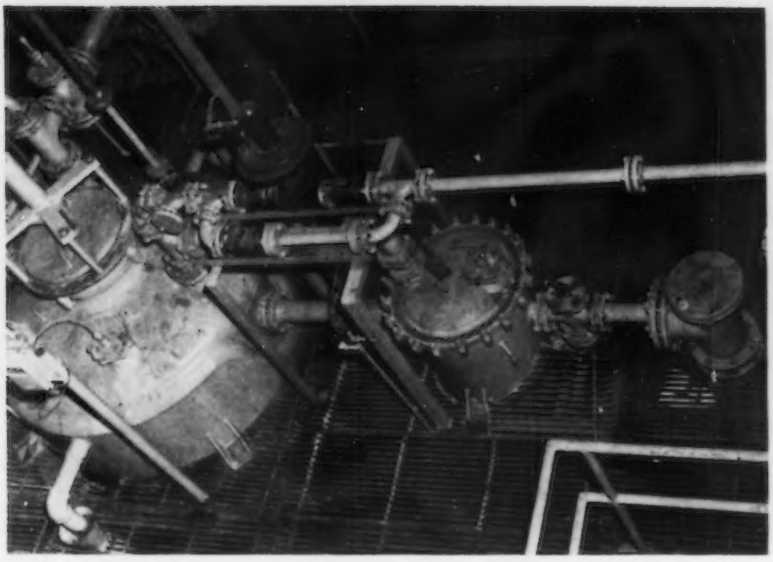
Considerable benefits in terms of pulp brightness have been obtained from the addition of a chlorine dioxide stage in the bleach plant. Bleaching sequence is chlorine, caustic, calcium hypochlorite, chlorine dioxide and calcium hypochlorite. Spent acid from the chlorine dioxide generating plant is added with the chlorine dioxide solution for pH control. Following the chlorine dioxide the acidity is neutralized with sodium hydroxide and the pulp mixed directly with calcium hypochlorite solution for the fifth stage. That is, there is no washer between the chlorine dioxide stage and the last hypochlorite stage.

The pulp from the first hypochlorite stage is first heated with steam in a double shaft mixer, then pumped at 14-15 per cent by an Impco series 300 gear pump to a titanium lined single shaft mixer where it is mixed with chlorine dioxide solution and passes to the bottom of an upflow tower. About 0.25 per cent chlorine dioxide is added, based on the weight of the pulp. Temperature in the tower is 165°F and re-

Above. Karbate eductor on chlorine dioxide generating system.

Below: Glassed line pump feeds chlorine dioxide to bleach plant.





Chlorine dioxide generating plant. Note separate scrubber at right.

tention time is about three hours.

As indicated previously, as the pulp leaves the top of the tower it is neutralized with caustic soda and cooled by the addition of dilution water. Then calcium hypochlorite solution is added and the pulp drops into a screw conveyor. This conveyor provides the necessary mixing action before it delivers the pulp to the top of the second hypochlorite downflow tower.

Chlorine Dioxide Generation

The chlorine dioxide generating plant which employs the Mathieson process was engineered by the general engineering department of Anglo Canadian in collaboration with Pfaudler Co. which also supplied some of the equipment of its own design. The plant makes extensive use of glass lined steel tanks, generators and piping. An interesting feature of the design is that the scrubber following the generator is separate and offset from it. Sodium chlorate solution is pumped from a glass lined storage tank to a head tank above the generator. From here it flows by gravity through a magnetic flowmeter-controller to the scrubber. Sulphuric acid is pumped and metered by two Milton-Roy Simplex pumps to the generator. These diaphragm type pumps have variable stroke and variable speed drive. Sulphur dioxide is added from the cooking acid accumulator. Warm moist air is fed to the generator by a Nash L-3 blower. Seal water on the blower is recirculated so as to maintain a temperature of 110°F. The warm moist air from the blower obviates the need to inject steam into the generator to prevent crystallization.

Special filters are provided on the gas and liquid lines feeding the generator to eliminate dirt. It is believed that this elimination of contaminants has been an important factor in the few mild explosions or "puffs" experienced since the plant started up.

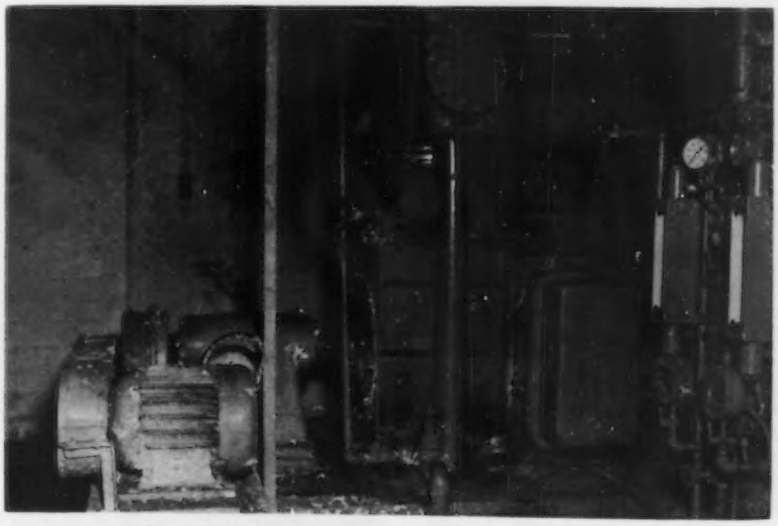
The chlorine dioxide solution flows by gravity to an outside storage tank. It is delivered to the bleach plant by two Goulds-Pfaudler Glasteel pumps. It is controlled by magnetic flowmeter-controllers.

Corrosion Resistant Materials

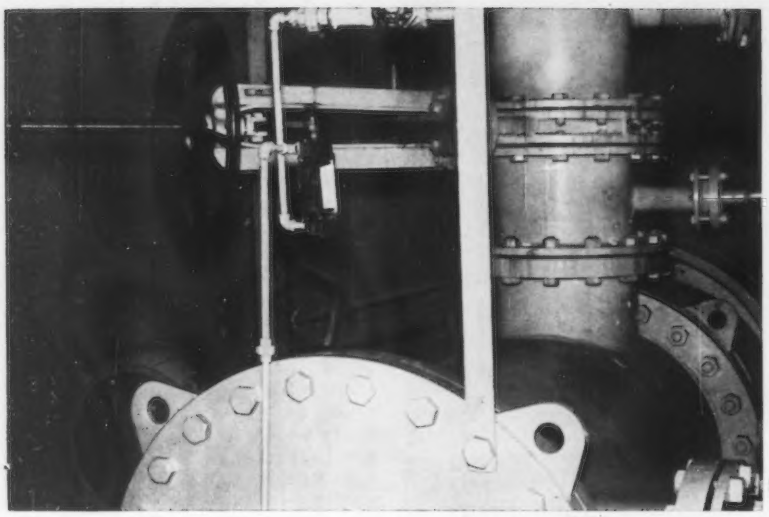
The following represents the thinking of company engineers in the selection of corrosion resistant material for the chlorine dioxide bleaching stage and generating plant.

Regarding the ClO_2 bleach stage itself, type 316 S.S. was used from the washer of the preceding stage, through the double shaft steam mixer, to and including the Impco high density pump since the stock is not particularly corrosive in this area. The pipe between the stock pump and the chemical mixer and between the mixer and tower is steel with a Hastelloy lining. While Hastelloy has proven unsatisfactory in heavy concentrations of ClO_2 it was felt that it was a reasonable gamble here because of the small amount of ClO_2 being used. In a later similar installation at Dryden titanium was used in these positions but the Chandler layout made this very difficult because of limitations relative to fabricating titanium linings in curved pipes. The mixer is titanium lined and the lining of the tower bottom nozzle is also titanium. The tower itself is tile lined. The stock rake at the top of the tower is stainless steel but shower water sprayed in at this point contains caustic and no difficulty is expected from the ClO_2 residuals which are small.

In the generating system the thought was that previous experience had shown a need for cleanliness in chlorate storage and chemical feeds to generator. Glass linings were used in chlorate storage, in solution storage and in chemical lines between filters and generator. Thus, while the sulphuric acid storage tank is steel as are all valves and lines to a point



Gear pump delivers high density stock to chlorine dioxide mixer.



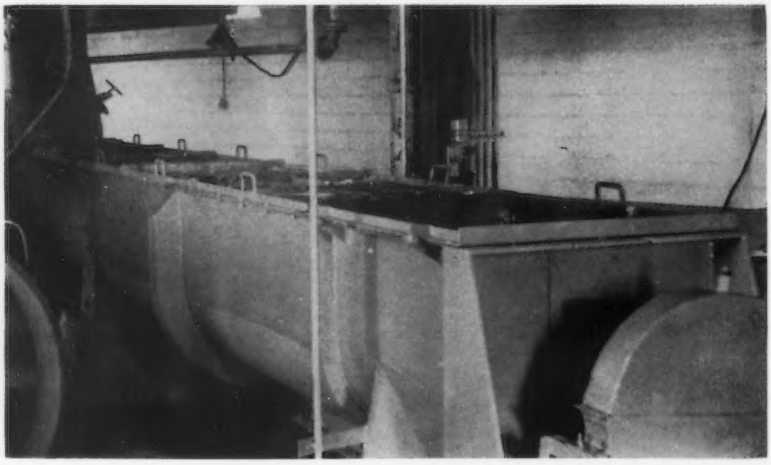
Titanium lined single shaft mixer blends chlorine dioxide and pulp.

close to the generator, the sulphuric acid piping downstream of the filter is glass lined. The same thing was done on SO_2 lines which were stainless steel up to the filter and with chlorate lines. All interconnections between parts of the generator and to the solution storage tank are glass lined, as are the lines between solution storage and bleach tower. Valves in this system are generally Saran lined except in cases where glass-lined valves are used either because of temperature hazard beyond the scope of Saran or because of possible danger should a rupture occur in a Saran-lined valve diaphragm. Saran-lined pipe could have been used interchangeably with glass-lined pipe in some of these locations where temperature conditions permitted. PVC pipe was used for drain and sewer connections and for sampling lines. It is generally more economical but adds undesirable hazards because of fragility and failures due to temperature extremes. Built-up fiber glass was used on ventilation ducts and fans because of cost and light weight with reasonable resistance to ClO_2 fumes. Glass lining was used in the generator bodies because of previous experience with lead linings which are subject to damage in the top of the generator and associated vessels.

Generally regarding ClO_2 and metal, it seems that only titanium has good resistance. Hastelloy may be used in some locations at a risk but, any other metal tried has been a failure. Within their physical limitations Saran and PVC seem to be entirely satisfactory. Where temperature conditions are a danger to these materials pyrex glass or glass-lined construction seems satisfactory and are generally used. In tubing, pipe lining, and diaphragms, Teflon is completely resistant. Two attempts were made to use Teflon gaskets either alone or in combination with asbestos but had to be discarded in favor of Tygon sheeting because of inability to make up a tight joint. First use of fiber glass construction was not successful but recent fabrication of this type has been very successful. It would seem that this type of construction is improving rapidly and its use may be extended.

Pulp Quality

With the introduction of chlorine dioxide bleaching improvements were obtained in most chemical and physical characteristics of the pulp. Brightness was increased from 88 to 92 GE. Significant improvements were found in pulp strength due to the less degrading action of the chlorine dioxide on the pulp fibers. These were most notable in the case of tear and fold. There was no loss in pulp opacity and there was an improvement in viscosity.



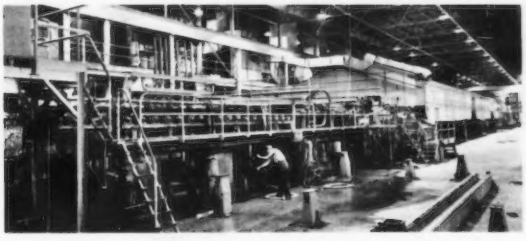
Jacketted screw conveyor provides mixing of chemical and delivers pulp to the hypochlorite tower.

S. R. CHRISTENSEN

Twin Open Side Calender Stack, No. 4 Machine. Roanoke Rapids, North Carolina

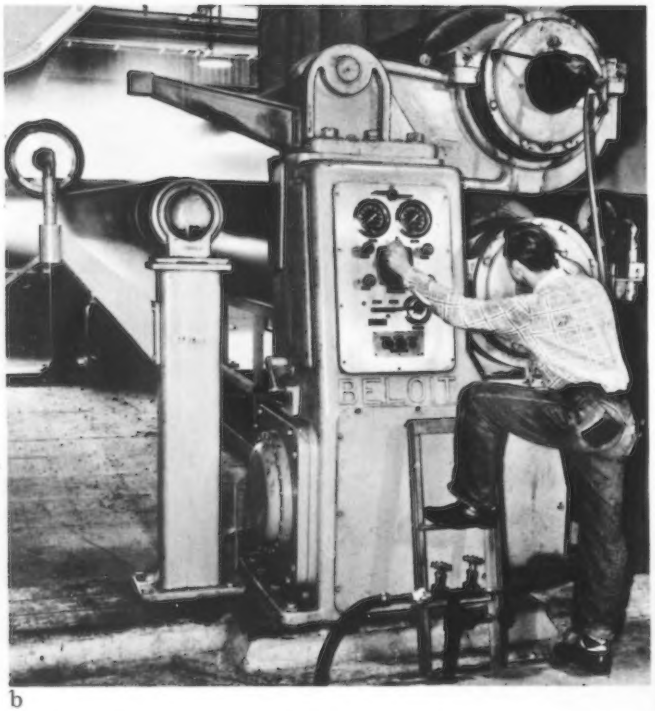
Halifax Paper Company, Inc.

A Division of Albemarle Paper Mfg. Co.



New 246″ Kraft paper machine at Halifax Paper Company, Inc. has boosted the mill's total daily production of Kraft paper to over 600 tons per day. The new No. 4 machine—the "Dixie Queen"—operates next to the "Southern Star," a sister 246″ Beloit machine installed in 1953. For further details, please turn the page.

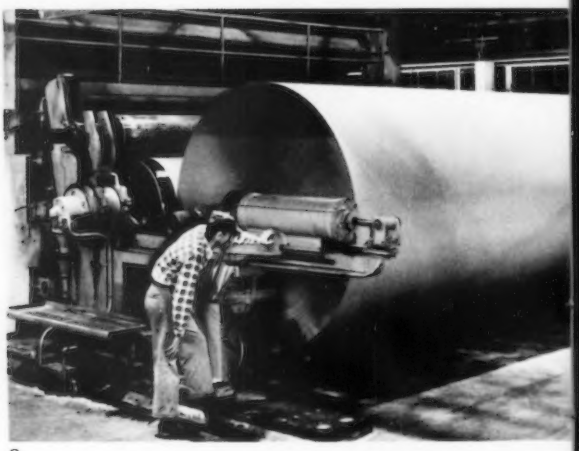
a



b

The "Dixie Queen," new 246" Kraft paper machine at Halifax Paper Company, Inc.

The "Dixie Queen" was running at speeds up to 1200 fpm within 72 hours and salable paper was produced six hours after start-up. The Fourdrinier and dryer sections are arranged to permit future expansion of productive capacity. (**a**) 246″ Beloit removable Fourdrinier and Type E air-cushioned inlet. (**b**) Breaker stack equipped with air-operated nip pressure control. (**c**) Beloit heavy-duty Kraft-type pneumatic reel. (**d**) Straight-through suction press with open couch draw.



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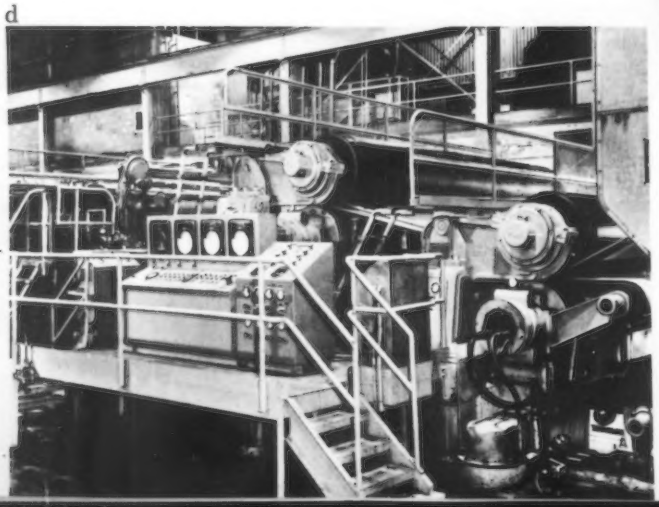

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Prices of Fibers

MARKET WOOD PULP

FOURTH QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$ 82.50/ 90.00	$82.50/ 90.00	‡$90.00/ —	‡$80.00/ —	‡$90.00/ —
Bleached Gw'd.	$ 97.50/100.00	$97.50/100.00			
Kraft, Blchd.	‡135.00/145.00	140.00/150.00			‡$157.50/ —
Kraft, Blchd. Hdwd.	135.00/140.00		140.00/ —		
Kraft, Semi-bleached.	130.00/ —				
Kraft, Unbl.	117.50/125.00	125.00/ —	†125.00/130.00	125.00/ —	
Sulphite, Blchd.	135.00/140.00	135.00/140.00	*155.00/ —	*155.00/ —	155.00/ —
Sulphite, Bl. Hdwd.	135.00/ —				
Sulphite, Unblchd.	130.00/ —	135.00/ —	†135.00/ —	*135.00/ —	
Sulphite, Unb'l. Gl'sn.		140.00/ —	†134.00/ —		
Soda, Blchd.	130.00/135.00	130.00/135.00			

‡ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances.
‡ Depending on Brightness.

COTTON LINTERS

F.O.B. OIL MILLS
WEEK ENDED NOVEMBER 15

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	n.a.	n.a.	n.a.	n.a.
2	$8.00/7.75	n.a.	n.a.	8.00/7.50
3	7.75/6.75	$7.50/7.25	$7.50/7.00	7.25/6.75
4	6.75/6.00	6.50/6.25	6.50/6.25	6.50/6.25
5	6.00/5.50	6.00/5.75	6.00/5.50	— /6.00
6	5.50/4.50	5.25/5.00	5.25/5.00	5.00/4.00
7	4.50/4.00	4.50/4.00	4.75/4.00	n.a.

WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York Nov. 21	Boston Nov. 21	Chicago Nov.	Los Angeles Nov.
No. 1 Mixed Paper	$ 7.00 9.00	4.00/ 7.00	6.00/ —	12.00/ —
No. 1 News	12.00/ 13.00	11.00/ —	13.00/ —	12.00/ —
Overissue News (Lg. size)	11.00/ 13.00	9.00/ 11.00	18.00/ —	18.00/ —
Mill Wrappers	19.00/ 22.00	9.00/ 11.00	9.00/ —	13.00/ —
Old Corrugated Containers	19.00/ 20.00	17.50/ 18.00	20.00/ —	19.00/ —
Super Resorted Kraft Paper	35.00/ 40.00	— / —	30.00/ —	55.00/ —
New Double Kr. Ld. Corr. Cuts	27.50/ 30.00	32.50/ 35.00	32.50/ —	35.00/ —
(Semi-chem. medium)	45.00/ —	45.00/ —	42.50/ —	— / —
New 100% Kraft Corr. Cuts	40.00/ 42.50	— / —	57.50/ —	— / —
New Br. Kraft, Env. Cuts	70.00/ 75.00	70.00/ 75.00	52.50/ —	60.00/ —
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	55.00/ 65.00	52.50/ —	50.00/ —
New Br. Kr. Bag Waste Unprintd.	60.00/ 65.00	65.00/ 70.00	60.00/ —	55.00/ —
No. 1 Groundwood Shvs.	25.00/ 30.00	23.50/ 27.50	12.00/ —	32.50/ —
White Newsblanks	42.50/ 45.00	47.50/ 52.50	30.00/ —	55.00/ —
No. 1 Soft White Shvs.	60.00/ 65.00	60.00/ 65.00	50.00/ —	75.00/ —
Super Soft White Shvs.	45.00/ 75.00	75.00/ 85.00	65.00/ —	— / —
Hd. White Shvs.	85.00/ 90.00	90.00/100.00	85.00/ —	95.00/ —
Hd. White Env. Cuts	100.00/105.00	110.00/115.00	90.00/ —	113.00/ —
Col. Tab. Cards	42.50/ 45.00	42.50/ 45.00	45.00/ —	40.00/ —
Manila Tab. Cards	62.50/ 65.00	62.50/ 65.00	60.00/ —	65.00/ —
No. 1 Col. Ledger	32.50/ 35.00	32.50/ 37.50	40.00/ —	27.00/ —
White Ledger	45.00/ 50.00	47.50/ 52.50	50.00/ —	55.00/ —
Mixed Book & Mag.†	— / —	— / —	12.50/ —	— / —
No. 1 Books‡	16.50/ 19.00	22.00/ 24.00	27.50/ —	10.00/ 12.00

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

LODDING
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AUBURN, MASSACHUSETTS

- DOCTORS—BLADES
- HYDRAULIC OSCILLATION
- Jet Air FUZZ REMOVERS
- No Spit STEAM SHOWERS
- Self Cleaning SHOWERS
- FRESH WATER SHOWERS

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E. C. Jacobi—H. D. Wake—P. R. Bruce. 746 So. Quincy St., Green Bay, Wisc.

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E & M Lamort Fils, Vitry-le-Francois (Marne) France

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PIONEER PAPER STOCK COMPANY

graders and packers of waste paper

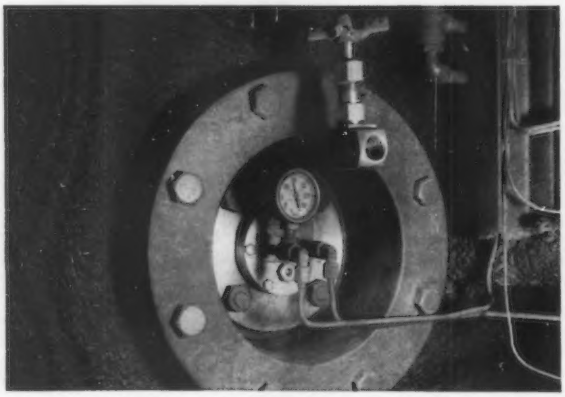
MEAD'S NEW CHILLICOTHE BLEACH PLANT FULLY CONTROLLED BY TAYLOR

The Mead Corporation has installed the latest Taylor TRANSCOPE® Instruments in the new four-stage bleach plant at its Chillicothe, Ohio Division. Designed by Mead engineers to provide fully automated operation, the plant is a complex of controlling, recording and measuring instruments, some of which are shown here. The main control panel, built by Taylor, connects 62 process control stations and dozens of essential process indicating and recording instruments.

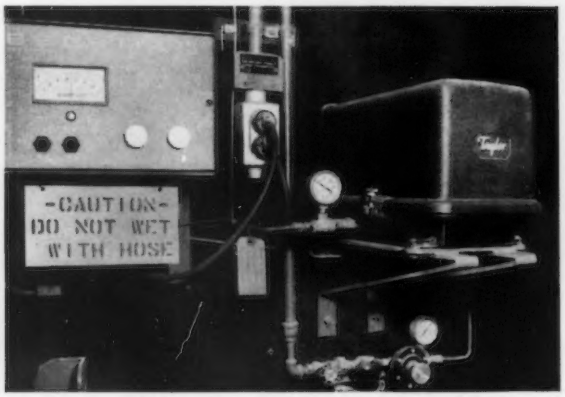
This ultra-modern graphic control panel enables one man to operate the entire bleach plant. A similiar Taylor graphic panel is now being supplied for Mead's brown stock washing and screening system at the same plant.

• • •

If you would like to know more about the application of Taylor TRANSCOPE *instruments to your processes, ask your Taylor Field Engineer or write Taylor Instrument Companies, Rochester, N.Y., or Toronto, Ont.*



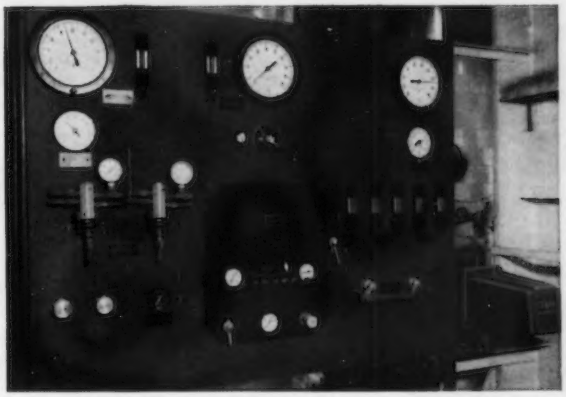
Typical of the Taylor diaphragm-type level transmitter applied to the bleach towers.



Taylor 700T Potentiometer Transmitter measures ORP on chlorine feed to the chlorination stage.

Taylor Instruments

One man supervises the complete operation of the new 4-stage bleach plant from this Taylor Graphic Control Panel at The Mead Corporation's Chillicothe Division.



Taylor also controls the chilled water supply in the chlorine dioxide manufacturing system.

Taylor Volumetric Load Measuring Element measures weight of chlorine storage tank.

MEAN ACCURACY FIRST

PJT NEWS OF SUPPLIERS

Crane Co. Industrial Products Group, Chicago, Ill., announces the appointment of J. L. Huss as manager of customer distribution service, a new development established to render order service and control of inventory at stock service centers.

Mr. Huss has been with Crane Co. since 1950, gaining considerable experience in the area of customer service and inventory control at the Toledo office. While there, his assignments varied from warehousing to field work as a sales representative.

In 1954, Mr. Huss was transferred to Cincinnati where he became manager of the Stock-Order department, later becoming assistant manager.

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Use Bitusize® "B" emulsified asphalt integral sizing to get high dry and wet strength in all your hard sized grades of board. Contact our office nearest you for complete information.
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Cincinnati 38, Ohio St. Louis 17, Mo. Oakland 1, Calif.
Atlanta 8, Ga. Tucson, Ariz. Inglewood, Calif.
Mobile, Ala. Portland 8, Ore. San Juan 23, P. R.
Bitumuls® Emulsified Asphalts • Chevron® Paving Asphalts
Laykold® Asphalt Specialties
SOAP CHIPS
DYNAMITE
Cola
BEEF

Stanley Steel Strapping, division of The Stanley Works, New Britain, Conn., has appointed John D. O'Hearn sales representative in Connecticut. His sales territory includes Litchfield, Hartford, Tolland, Windham, and New London counties.

J. D. O'Hearn

W. C. Naugler

Formex Co., Division of Huyck Corp., Knoxville, Tenn., announces the appointment of Warren C. Naugler as manager of sales and field service.

After completing studies at the University of Maine in 1950, he joined Huyck Felt Co. as a field service engineer. Promoted to sales engineer in 1958, he was assigned to the New England territory.

Mr. Naugler's appointment is an important step in the broadening of the applications of "Formex," the new synthetic fourdrinier wire to the paper industry.

Whiting Corp., Harvey, Ill., announces that H. B. Caldwell, manager of Whiting's New York Domestic office, has been named corporation consultant for Swenson chemical processing equipment, effective December 5.

T. R. Elmblad and A. C. Kukral have been named managers of Whiting's New York Domestic and Cleveland sales offices, respectively. Both were formerly in the Cleveland office, Mr. Elmblad as manager.

R. J. Enroth moves from the Chicago office to New York Domestic and F. R. Schwantes from Chicago to Cleveland. All appointments are effective December 5, 1960.

Shawinigan Resins Corp., Springfield, Mass., has added David W. True to the sales department as a trainee.

A native of Shaker Heights, Ohio, Mr. True received a B.A. degree in chemistry from William's College,

Williamstown, Mass., and an M.B.A. degree in finance from Columbia University, New York. He was previously employed in market development at Armour Industrial Chemical Co. in Chicago.

Fischer & Porter Co., manufacturer of process instrumentation, data reduction systems, laboratory glassware and chlorination equipment, has appointed Barry Emerson Berry as a field service engineer. He will be located in the company's Milwaukee offices.

T. S. Harris

A. F. Johnson

Buckeye Cellulose Corp. has appointed Thomas S. Harris associate director-operations for the cellulose and specialties technical division.

Mr. Harris, formerly chemical superintendent at Buckeye's Foley, Fla., plant, replaces Arthur F. Johnson, who has been transferred to the research and development division of Procter & Gamble.

Mr. Harris joined Buckeye in 1949 and became chemical supervisor at the Foley plant in 1955. He was appointed chemical superintendent there last year. Mr. Harris is a chemical engineering graduate of Georgia Institute of Technology.

Dr. Johnson, who now makes his headquarters at P&G's Ivorydale Technical Center, had been a research chemist for Buckeye prior to his appointment as associate director-operations. A graduate of Antioch College, he received his doctorate in chemistry from Ohio State University in 1948.

Stauffer Chemical Co. has opened a sales office in Wilmington Del. It is located in the Delaware Trust Building.

The new office will be Stauffer's sales headquarters for the Wilmington-Greater Philadelphia area for both the Industrial Chemicals Division and Victor Division.

Jack McLaughlin and William Bradley will be sales representatives of the Industrial Chemicals Division. Richard Koch will represent Victor.

FIGHT "HEAD" ACHES 3 WAYS
with the NEW
LAMB PAPER HEAD CUTTER

1 CUT HEADS TO EXACT SIZE NEEDED.

2 MINIMIZE COST BY REDUCING LARGE HEAD INVENTORY.

3 RELEASE HEAD STORAGE SPACE FOR MORE PRODUCTIVE USE.

A corner-cutter, a cost-cutter, and a head cutter—Lamb delivers all three in *one* efficient, dependable machine that takes up just 30 square feet of floor space.

No need to stock heads in a wide variety of sizes. Cut to exact size only the quantity needed for current production. Operator sets diameter directly on graduated scale. Air operated, pivoting stack clamp is foot-pedal controlled, leaving both hands free.

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Cady Exact Dead Weight Micrometer

BUILT FOR PRECISE TESTING

Cadytest Instruments are designed for accuracy in determining or comparing thicknesses, basis weights, or bursting strengths. They are available in stock models, or specials for specific tasks.

Write for Brochure & Prices

E. J. Cady & Company
Manufacturers
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River Forest, Ill.

Cady Burst Tester with Automatic Uniform Cycle

PJT NEW EQUIPMENT & SUPPLIES

Revolving Pipe Connection Has Positive Seal

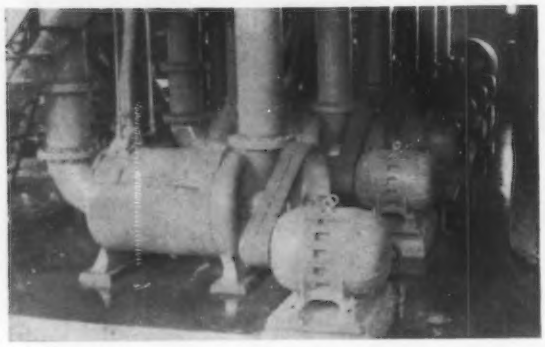
A revolving connection that forms a positive seal between a stationary supply line and revolving equipment, is marketed by Perfecting Service Co. of Charlotte, N. C., under the trade name of Rotary Union.

Rotary Unions are made in two types. Type "P" is a single inlet unit designed to convey liquids or gases into or out of revolving machines, rolls or drums. Type "S" (syphon) has dual pipe connections where both supply and return of gases or liquids are required within the same unit. A positive sealing principle uses a monel bellows, keeping the sealing surfaces parallel and leak-proof.

Another feature is the mechanical seal so designed that it automatically adjusts to the actual pressure of the media being transferred. Ball bearing construction and self-aligning reduces strain and wear on the seal assuring long trouble-free service.

This Rotary Union handles steam, water, air, vacuum, gases and industrial fluids on applications up to 250 p.s.i. and 150 p.s.i. steam, temperatures up to 500°F. without adjustments.

Shipped from stock in pipe sizes ¼ inch through 3 inch with right or left hand threads. Machine threads furnished for speeds over 600 r.p.m. Flange connections are available for mounting the Rotary Union to the revolving drum or cylinder.



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- Occupy 90% less space
- Use less H.P.
- Produce cleaner, stronger, more salable paper

CONTACT
APMEW, Inc., P. O. Box 1, Glens Falls, N. Y.

Air Drying Unit Protects Pneumatic Controls

Hankison Corp., Canonsburg, Pa., announces the development of an economy model non-cycling air dryer. Called the Series-E Air Dryer, the unit is designed and engineered for the protection of pneumatic controls.

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FOR ALL PAPER MAKING PURPOSES

ANGLO-AMERICAN CLAYS CORP.

(Formerly: English China Clays Sales Corporation)

6 East 45th Street, New York 17, N. Y.

With a rated capacity of 10 s.c.f.m. at 100 p.s.i.g., it is suited for air conditioning and ventilating control systems, printing press and other pneumatic feeds, processing and production lines, and many laboratory applications.

The efficient and trouble-free unit drys air and gases by mechanical refrigeration. No cooling water is needed and ambient temperature variance problems are eliminated. The Series-E Air Dryer is enclosed in a steel cabinet equipped for floor or wall mounting. It is available as a basic unit (no trap), Model E-10; with the Hankison Mag-Pneu-Power Automatic Trap, Model E-10T; or with the Armstrong 21 Trap, Model E-10C. The unit measures 20⅛ high x 14 wide x 12 inches deep, and weighs approximately 60 lbs.

Strapping Sealer Improve Crimping

Two sealers from the Signode Steel Strapping Co. assure properly-sealed joints on heavy duty strapping. Both make joints stronger than

previously possible, yet both are shorter and lighter than earlier sealers. And both the model B-1435 for 1¼-inch strapping and the UB-250 for 2-inch strapping incorporate Signode's "Sure Seal" device.

The Sure Seal mechanism requires that the sealing stroke be properly

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LARGE USERS OF STARCH HAVE FOUND THIS EASY TO OPERATE COOKER A VALUABLE TOOL IN LABORATORY AND MILL.

WILL COOK THE NOW POPULAR HIGH TEMPERATURE STARCHES.

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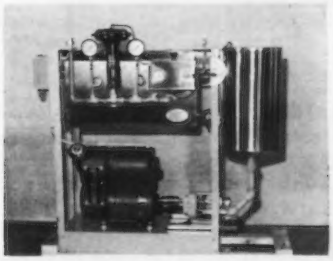

Continuous Starch Cooker

Thermal Equipment Corporation
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DuVerre Eliminates Corrosion in Venturi Bleach Fume Scrubbers

Now du Verre resin bonded fiberglass construction adds superior corrosion resistance to Schutte and Koerting's efficient Ejector-Venturi Scrubbers. Widely used throughout the process industries, SK 4010 units move large quantities of air and gas at low draft. They effectively remove dust and particulate matter, obnoxious vapors and corrosive gases.

Besides complete corrosion control, du Verre construction offers many other important advantages: Unlike lined equipment, venturi and jet can be accurately machined for more efficient operation. Erosive action of the high velocity venturi jet is minimized, even at temperatures approaching 300° F. High strength coupled with low weight eases handling and installation. The need for elaborate supporting steel is eliminated. Complete corrosion resistance on both exterior and interior surfaces eliminates need for painting and maintenance.

Investigate the many advantages of du Verre corrosion-resistant ducts, stacks, hoods, tanks, trays and specially-fabricated process equipment.

Write for Bulletin 101 Today!

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PUMPAGE

Goulds reports on trends in pulp and paper

ON THE BLEACH. More than one bleach mill has told us their stock and filtrate pumps in stainless steel have been in service for fifteen years or more—without replacement of the original casing. By using standard pumps, most mills avoid the cost of inventorying special pump parts. Spare rotating parts for their chlorine and hypochlorite bleaching pumps are the same as those on standard stainless steel trimmed pumps already in use at most mills. We can usually ship pumps and parts in 316-standard immediately from stock. We pour 317 for chlorine dioxide to order. The right kind of stainless makes the difference in giving you long, low-cost service. Contact your Goulds man for help in making your selection.

DIGESTER CIRCULATING . . . WHICH PUMP? Whether circulating in continuous or batch digestors, your pumpage is the same—hot, corrosive, highly abrasive. For best service life and lowest long-run costs you need *all* these: (1) Extra-thick casings with generous corrosion allowances, (2) Water-cooled bearings, (3) Fully open impeller with ejector vanes on back side adjustable externally to compensate for wear, (4) Back pull-out design with spacer coupling for easy dismantling, (5) In and out stuffing box flushing connections. Goulds Model 3138 measures up to these standards. Available with or without spring-loaded bedplates. For detailed bulletin, drop us a line.

WHEN PUMPS WEAR . . . IS IT EROSION, CORROSION, OR BOTH? Corrective measures depend on knowing one from the other. In our data section 766.8, you will find a series of photographs that make it easy for you to identify the cause of internal pump damage. A postcard request will bring you your free copy.

OBSERVATIONS

ON FIRST COST VS. FINAL COST

By E. D. Schwandt, Assistant Chief Engineer, Goulds Pumps

The current tight money situation lies behind the closer look at first cost.

First cost is definitely important, but a *true* analysis of pumping costs must also include other cost factors—such as power consumed and maintenance required. In too many cases, the first-cost saving in buying competitive-design equipment is offset within the first year or two of operation by machine downtime and costly repair.

On the basis of our experience with mill installations (including both competitive- and custom-design pumps), we feel replacement, power, and maintenance costs can be minimized by buying first-grade pumps. Experience proves that a quality pump is often the one that is *least expensive in terms of cost per million gallons pumped.*

Whatever the cost considerations—long-term or short-term—let us help you engineer the pump best suited to your job.

Goulds Pumps, Inc., Dept. PT-110, Seneca Falls, N. Y.

GOULDS PUMPS

completed before the sealer can be released from the strapping, thus virtually eliminating any possibility of miscrimping.

Improved crimping makes stronger, safer joints with increased resistance to shock loads; the lighter weight and shorter length make the improved tools easier to handle. Less maintenance is necessary with the design, it is reported.

For further information, write to Signode Steel Strapping Co., 2600 North Western avenue, Chicago 47.

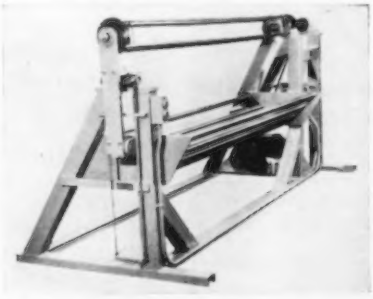
Flexible Coupling Self-Lubricating

Lifetime lubrication, ease of operation and permanent durability are now possible with an American jaw flange flexible coupling.

The couplings utilize a specially-designed oil-impregnated center member made of sintered steel. Through capillary action, the center member absorbs and retains high-grade lubricating oil for long periods and dispenses it to bearing surfaces as needed.

The designed unit not only maintains all the misalignment capacity characteristics inherent in standard American jaw flange flexible couplings, but is said to have greater torque and load-carrying capacity with attendant longer life.

Additional application data available by writing the manufacturer, Zurn Industries, Inc., Mechanical Power Transmission Div., Erie, Pa.



CORE UNWINDER has automatic means of removing materials to give greater value to salvage as well as eliminate time consuming stripping at the press and coaters. This system further eliminates untidy shredding and allows all waste to be restricted to one or more central locations. Designed by the Rumford Printing Co. of Concord, N. H., this machine has been thoroughly tested and is said to be advantageous to any printer or converter. Write to Leighton Machine Co., Manchester, N. H., for further information.

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures
(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Oct. 15	Oct. 22	Oct. 29	Nov. 5	Nov. 12
1960	95.2	94.5r	95.5r	90.7r	95.5
	Oct. 17	Oct. 24	Oct. 31	Nov. 7	Nov. 14
1959	97.1	96.3	97.8	94.6	96.5

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	96.5	97.7	98.1	96.9	97.6	96.1	81.2	91.7	89.1‡	94.6‡	—	—	—
1959	87.3	90.5	93.2	94.4	95.5	95.6	84.5	96.0	92.4	97.4	96.2	86.6	92.2

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1953	1954	1955	1956	1957	1958	1959	1960
Year to Date	94.2	91.9	96.3	98.6	91.2	87.2	92.7	93.9
Year Average	92.3	91.6	96.2	97.9	90.4	87.0	92.2	—

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	Oct. 15	Oct. 22	Oct. 29	Nov. 5	Nov. 12
1960	94	93	91	88	92
	Oct. 17	Oct. 24	Oct. 31	Nov. 7	Nov. 14
1959	98	94	96	94	95

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	92	95	94	92	94	92	78	93	87	93	—	—	—
1959	89	94	95	94	96	96	83	97	92	96	94	80	92

‡Preliminary.
† Per cents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	THIS WEEK ENDING Nov. 12, 1960	LAST WEEK ENDING Nov. 5, 1960	CUMULATIVE TO DATE Jan. 1, 1960 to Nov. 12, 1960
% Activity	92%	88%	91%
Total	325,226	308,733	13,948,715
Containerboard—Domestic Use	167,044	160,172	7,209,353
Liner	110,482	107,502	4,833,493
Corrugating Material	51,885	48,098	2,148,337
Chip & Filler Board	4,677	4,572	227,523
Boxboard—Domestic Use	98,101	94,543	4,286,677
Folding	57,813	57,200	2,568,822
Set-Up	9,637	10,388	487,902
Special Food Board	30,651	26,955	1,229,953
Other Paperboard	60,081	54,018	2,452,685
Containerboard Type	30,884	26,654	1,174,478
Boxboard Type	29,197	27,364	1,278,207
Total Orders			
Received	272,216	355,583	
Unfilled End of Week	415,674	469,198	

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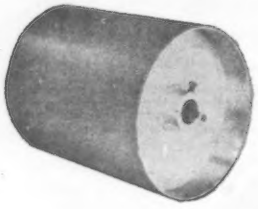
GEAR MOTORS
½ to 20 HP
PRICED 25% Below All Competition
Nema Frames Totally Enc. Fan Cooled

WORM GEAR REDUCERS
1/4 HP to 400 HP
Horizontal - Vertical
All Ratios
PRICED 30% Below Most Competitive Units

Reducers Fan Cooled At No Extra Cost



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At No Extra Cost
Diameters From
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COUPLINGS • COLLARS • TAKE UPS, ETC.

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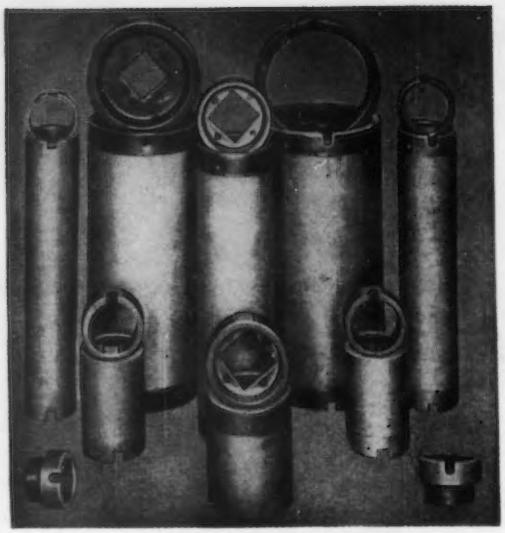

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Straight wound paper cores made in sizes from 2" to 10" inside diameter with any thickness wall required.

Long draw protected slot caps of heavy gauge steel in all standard sizes.

Heavy duty caps with reenforced square hole. This patented feature of reenforcement gives added strength and durability.

Samples of caps or cores will be gladly submitted

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The humorous side of things that happen in paper and pulp mills at one time or another.
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GEO. M. SUNDAY & ASSO.

PERSONNEL CONSULTANTS TO THE PULP, PAPER & ALLIED INDUSTRIES

6 East Monroe, Chicago ANdover 3-1970

TF

Production Superintendent

We are seeking a graduate engineer with experience on multi-cylinder board machines to supervise all mill operations including receiving of raw materials, stock preparation machine, production and shipping. He will not be responsible for maintenance. Ours is a one machine mill located in the Niagara Peninsula. Address box 60-234 care Paper Trade Journal.

N-28

WANTED

Mechanical Engineer with at least two years' experience for position in Engineering Department of Tennessee pulp and specialty paper mill. All phases of general engineering, one plant location, on TVA lakes, two life insurance policies, excellent surgical and hospitalization policy and liberal pension plan—all at no cost to employee. Reply with picture, complete educational and occupational backgrounds to Box 60-230 care Paper Trade Journal.

D-5

Immediate Position open for Graduate Mechanical Engineer. Prefer man experienced in paper or paper converting. Will accept candidate with machine design experience. Send resume, salary requirements to Rochester Paper Company, Rochester, Michigan. N-28

WE ARE EMPOWERED BY THE CHAIRMAN OF THE BOARD AND THE DIRECTORATE OF A WELL KNOWN EASTERN COARSE SPECIALTY MILL TO CONDUCT CONFIDENTIAL PRELIMINARY NEGOTIATIONS WITH CANDIDATES FOR THE POSITION OF

PRESIDENT

INITIAL COMPENSATION WILL BE IN THE RANGE OF

$40,000 To $60,000

PLUS STOCK OPTION AND OTHER VALUABLE BENEFITS

The post becomes available by virtue of the impending retirement of the incumbent, now also Board Chairman.

Client company, long recognized as the top quality and service house in its line, has been traditionally and is presently in enviable financial position. Dividends passed only once in the last fifty years, and that some time back. Cash reserves more than ample. No funded debt. Credit rating AAA-1.

Though gross sales have been down some since 1958 from former highs of around $10,000,000—this because of a cyclic constriction in the major industry it largely serves—profits remain very satisfactory and should rise substantially as the fruits of extensive research and new product development programs now in work manifest themselves in terms of new business.

Under most excellent management for the past three decades, company is ably staffed with top-flight executives in key positions and operates in a well-ordered, efficient way. There are no incipient weaknesses of which we are aware in the entire structure. Corporate climate is most pleasant.

Looking toward the future, it is the opinion of the Board Chairman—a judgment in which we concur—that if any special emphasis is needed at presidential level, it is in Sales. Production capacity is several millions in volume over present running levels and ought to be utilized. It is not felt, however, that the situation requires a "fireball" salesman.

Wanted here is a mature, well-balanced all-around administrator with a high sales consciousness—a conservative man, inclined toward preserving the status quo while building on it—an executive who will husband the values as he finds them, yet progress the operation in every feasible way—a sort of a combination defense and offense expert.

Make initial written inquiry in full confidence to Mr. George M. Sunday personally, enclosing two pictures and two copies of comprehensive resume covering vital statistics, education and chronological treatment of background and experience, including present earnings.

Telephone conference will follow, at which time cogent details will be revealed and arrangements made for personal interview.

SUNDAY, INC.

Personnel Consultants to Management
Pulp, Paper & Allied Industries

6 East Monroe Street **Chicago 3, Illinois** **ANdover 3-1970**

N-28

MACHINE DESIGN ENGINEER

ARE YOU LOOKING FOR THESE ADVANTAGES?

*** CHALLENGING ASSIGNMENTS**
*** ADVANCEMENT OPPORTUNITIES**
*** POSITION IN A GROWING COMPANY**
*** GOOD SALARY AND BENEFITS**
*** FRIENDLY ATMOSPHERE**

. . . . THEN YOU SHOULD CONSIDER THIS POSITION:

A machine design engineer responsible for solving design problems; designing equipment and parts of equipment; modifying design of equipment; and directing others in preparing drawings and layouts.

. . . . YOU SHOULD HAVE:

Degree in Mechanical Engineering.

Five years experience in machine design (In paper mills preferred but not essential).

Knowledge of strength of materials, mechanisms, and machine shop practice.

Creative Ability.

. . . . IF QUALIFIED, YOU WOULD WORK:

For a medium-sized, growing paper company; away from congested metropolitan areas; near many cultural and recreational facilities.

YOU SHOULD SEND RESUME TO:

BOX 60-249 care Paper Trade Journal

WANTED FOR WORK IN ISRAEL

TOUR BOSSES

FOR MODERN TWO-MACHINE MILL

OPERATING ONE STRAIGHT FOURDRINIER ON FINE AND KRAFT GRADES 30 TO 200 LBS. AND ONE 126" BELOIT FOURDRINIER PICK-UP COMBINED MACHINE WITH PRE-DRIERS AND YANKEE ATTACHMENT PRODUCING LIGHT-WEIGHT PAPERS 10 TO 35 LBS. AT HIGH SPEEDS.

OPERATING EXPERIENCE WITH COMBINED MACHINE IS ESSENTIAL.

EXCELLENT SALARY AND LIVING CONDITIONS ON A CONTRACT BASIS FOR QUALIFIED PERSONNEL.

COMPLETE DETAILS OF EXPERIENCE AND NAMES OF FORMER EMPLOYERS SHOULD BE FORWARDED TO:

AMERICAN ISRAELI PAPER MILLS LTD.

P.O. BOX 142, HADERA, ISRAEL

D-12

— WANTED —

RESIDENT MILL MANAGER

We're looking for a man with broad experience in all phases of manufacturing and converting of toweling, tissue and facial to become manager of multi-machine Eastern mill. Experience in Yankee and Fourdrinier required, deinking experience preferred. Salary to be based on background and ability. Reply, including resume, to: Box 60-227 care Paper Trade Journal.

N-28

PAPER COATING PROCESS SUPERVISOR

Excellent opening for a person with a knowledge of diazo coating process and equipment, plus ability to direct and supervise production. Position offers outstanding opportunity for progress with leading Michigan firm.

Send biographical resume including experience, qualifications, and salary expected to Box 60-247 care of Paper Trade Journal.

N-28

NEW PRODUCTS DEVELOPMENT

From Laboratory stage and through Production Processes to Sales is required. We believe this would need basic background in Coating, Printing, and Embossing operations as well as a knowledge of Pigment Colors, Gravure and Flexography Printing inks and lacquers. Ability to apply the newer Plastics and Latexes to our processes would also be an asset. If you can fulfill these requirements, send complete resume to:

KUPFER BROS. CO.

P.O. BOX 328, NORTH UXBRIDGE, MASS.

N-28

TECHNICAL SALES — SERVICE

Reside New England. Work from Home Representing Manufacturer Paper Coating and Filler Pigment. Experience Paper and Coating Desired. Also Willingness Travel other Areas as Required. Send Resume, Photograph and Salary Required which will be Treated in Strict Confidence.
Address Box 60-222 care Paper Trade Journal.

J-23

Technical Director

wanted for a Progressive Western Fine Grade Paper Co. If you have had experience as a Technical Director together with a wide experience in coating formulations and their applications both on and off machine, size presses etc., then send us a brief resume of your work history and references. Address Box 60-233 care Paper Trade Journal.

D-5

Wanted

WANTED—One used 36" Bauer Twin Disc Refiner equipped with 2—150 to 200 H.P. motors with starters. Address Box 60-246 care Paper Trade Jounal.

N-28

ROSS PAPER MACHINERY CO.

265 PASSAIC STREET • NEWARK 4, NEW JERSEY

STANLEY S. ROSS, President — HUMBOLDT 4-8880

SUPPLIERS OF PAPER MACHINERY TO THE WORLD — RPM

For Sale Leasing Plans Also Available

BAG MACHINERY

1—S&H—F&S—3¼" to 10¼" face, 6" to 13" Tube Pull.

BEATERS

2—3000# Downingtown 60" x 67" roll; like new

CALENDER STACKS

1— 80" P & J 7 roll; heavy duty
2— 82" & 86" Lobdell five roll
1— 96" B-C 6 Roll—heavy duty
1—108" B-C 5 roll
1—104" B-C 8 roll
1—115" B-C 7 roll
1—124" Downingtown 5 roll
1—126" Farrell 9 roll—w.c. bearings

CHIPPERS

1— 96" Murray 6 knife; A-F Brng

COATERS

1— 24" Waldron Coater & Embosser
2— 40" Chapman Extrusion Type
2— 65" & 76" Mayers

COMPLETE PAPER & BOARD MACHINES

3—Sandy Hill 81" trim single cyl. Tissue
1—M & W 72" Trim Fourdrinier paper machine
1—B-C 100" 7 cyl. Board Machine Complete
1—M & W 72" Trim Yankee Fourdrinier
1—Rice Barton 84" Fourdrinier

CYLINDER MOLDS

1—104" face x 36" dia
8—114" face x 36" dia. w/ rubber couches
8—124" face x 36" dia w/rubber couches

CYLINDER WET ENDS

1—Single cylinder; 99" face x 48" dia.
1—114" 7 cyl. Wet End, complete through main presses
1—124" 7 cyl. Wet End, complete through main presses

DRYERS—HYDROSTATICALLY TESTED

24" Dia.:
39— 46" face; Chrome plated
1—156" face w/gear and steam joint

28" Dia.:
3— 70" face w/gears & bearings
3— 73" face w/gears & bearings
3— 76" face w/gears & bearings
3— 77" face w/gears & bearings
2— 84" face
2— 84" face w/accessories

36" Dia.:
1— 42" face
2— 44" face; 2—46" face
4— 70" face w/gears & bearings
11— 72" face w/gears & bearings
1— 74" face Lukenweld w/A-F Brng
9— 75" face w/gears & bearings
26— 76" face; complete section
9— 76" face w/gears & bearings
2— 77" face w/gears & bearings
1— 78" face w/gears & bearings
2— 80" face
5— 84" face
30— 84" face; complete section
18— 90" face; complete section
9— 92" face; complete section
1— 96" face
1—138" face
10—160" face

42" Dia.:
23— 76" face; complete section
46— 96" face w/gears, frames & bearings
1—120" face
1—160" face

48" Dia:
49— 46" face; chrome plated
12— 82" face; complete section
3—84" face
34—106" face w/gears & bearings
2—110" face w/gears & bearings
6—123" face w/gears, frames & bearings
1—128" face
20—130" face; complete section New A-F Brngs., Gears & Steam Joints

DRIVES ENCLOSED RIGHT ANGLE

1—Beloit 65 h.p. Ratio 2.88 to 1
3—Jones 65 h.p. Ratio 4.83 to 1
1—Michigan 92½ h.p. ratio 10.1 to 1
1—Phila. 28 h.p. Ratio 10.56 to 1
1—50 h.p. Reliance VS with MG set & controls
1—Cleveland 47 h.p.—ratio 3 5/9 to 1
1—Cleveland 23.5 h.p.—ratio 3 5/9 to 1

EMBOSSERS

1— 80" Hudson Sharp; A-F Brng
2— 62" Textile Machinery Co., w/drives

EXTRACTOR ROLLS—DOWNINGTOWN

2—132" face x 24" dia.; A-F Brng

FELT CONDITIONERS—VICKERY

1—New Bird—218" Max. cleaning area
1—New Bird—166" Max. cleaning area

FELT GUIDE

1—New Nash Wet Felt Guide, Style 535RH

FLAT SCREENS

1—Bird Jonsson—S.S. Construction
1— 4 plate Tailing Screen
2— 12 plate IMPCO w/Dunbar Drives
8— 14 plate IMPCO—Bronze Vats S.S. Plates

INLETS & HEADBOXES

1—106" Valley w/8" distributing roll
1—131" Valley w/10" distributing roll; SS lined
1—131" Beloit Pressure Type; SS rolls—1100 f.p.m.

JORDANS

2—Appleton #1 w/A-F Brng
1—Horne w/A-F Brngs
4—Shartle Miami #2 w/A-F Brngs
1—Jones Midget—Used 2 months

MOTORS 3 PH 60 CYCLE

1—100 h.p. GE; 440 v; 695 r.p.m.
1—250 h.p. West. syn. 440V., 450 r.p.m.
1—300 h.p. West; 2200 v; 503 r.p.m.
1—350 h.p. GE; 2200 v; 720 r.p.m.; Synch

PAPER MACHINE DRIVES

1—De Laval 100 h.p. steam turbine w/reducers

PULP MILL EQUIPMENT

1—Lannoye #1 Pulper
1—Murray 2 deck Chip Screen, 5 ft x 14 ft.

PUMPS—OPEN IMPELLER

1—Shartle 10 x 20 Duplex
47—Centrifugal Stock and Water Pumps

REELS

1—100" Kohler automatic two arm unwind reel; 60" dia rolls; new condition
1—109" two bowl upright
1—123" Beloit—2 bowl
1—126" Beloit Aldrich surface drive type
1—146" B & S pope type w/Reliance drive

REFINERS

2—Jones Fibremasters—Lava Filling—New.
2—#1 Claffin; A-F Brng
1—24" Bauer Double Disc w/two 50 h.p. motors
1—24" Downingtown Weiner; new
1—36" Bauer, Model 185 w/2—75 h.p. motors
1—Dilts #4 Hydrafiner
2—Dilts 36" Classifiners AF Brng.
1—Claffin #2—New fillings AF Brng.

ROLL GRINDERS

1—124" x 30" Farrel w/crowning device
1—208" x 32" Farrel w/crowning device

ROLLS

Distributor—Stainless Steel
2— 8" dia x 115" face
1— 6½" dia x 115" face

Couch—Rubber Covered
20 Misc. Sizes Dwngs Available

Press—Rubber or Brass Covered
71 Miscellaneous sizes. Drawings available

Felt—Steel, Brass, Rubber Covered
335 Miscellaneous sizes. Drawings available

Calender—Chilled Iron
72 Miscellaneous sizes. Drawings available

ROTARY SCREENS

5—Bird #3A, Model 100 w/copper vats
1—Jones & Leithwalk copper lined

SHEETERS—WITH BACKSTANDS

1—45" Beck w/layboy
1— 50" Finley
6— 56", 60", 66" & 70" Hamblets
1— 65" Kidder w/elec. eye and layboy
1— 74" Hamblet w/motor
1— 76" Beloit Duplex
1— 82" Hamblet
1— 85" Hamblet duplex w/layboy
1—105" Hamblet
1—112" Beloit Duplex Board Cutter; A-F Brng

SLITTERS & REWINDERS

17¾" Maximum Rewind Diameter
2— 42" Cameron Type 26-2A

24" Maximum Rewind Diameter
3— 42" Cameron Type 6
1— 42" Cameron Type 6 Shear Cut
1— 62" Cameron Model 6
1— 62" Cameron Type 8
1— 72" Cameron Type 9-5

30" Maximum Rewind Diameter
1— 52" Cameron Type 10
1— 60" Langston Shear Cut
1— 72" Cameron Type 10; A-F Brng
1— 72" Cameron Type 10 Shear Cut; A-F

36" Maximum Rewind Diameter
1— 70" Variable Speed Center Winder
1— 62" Cameron 8-10
1— 72" Cameron Model 8-10

42" Maximum Rewind Diameter
1— 40" Egan Shear Cut; A-F Brng
1— 60" Kidder Model SH Low Bed
1— 72" Beloit Shear Cut
1—136" Cameron Type 18; A-F Brng
1—161" Cameron Type 18 w/60 h.p. Reliance VS Drive

48" Maximum Rewind Diameter
1— 86" M & W Four Drum Shear Cut
1—152" Langston Shear Cut

60" Maximum Rewind Diameter
1—112" Cameron Type 18
1—120" M & W two drum w/75 h.p. drive
1—120" Langston
1—136" Langston; AF Brng; shear cut

SLITTERS & REWINDERS—DOUBLE REWIND

18" Maximum Rewind Diameter
1— 42" Cameron 26-7D for Cellophane
1— 52" Cameron Type 26-3A

30" Maximum Rewind Diameter
1— 42" Essex Shear Cut; A-F Brng
1— 42" Cameron Type 28-3
1— 92" Cameron Type 28-3 w/ vari-drive

STOCK CLEANERS

2—1000 g.p.m. Shartle Hydrafuges w/motors
14—Bird Dirtecs; 2" & 6" bronze
1—Bird Dirtec 12". Rebuilt by Bird
21—4" Vortraps—Bronze

STOCK REGULATORS

2—Braemer SS; 25 t/d cap; Foxboro controls
2—Poirier; 25T /D cap

SUCTION COUCH ROLLS

1—125" face x 18" dia—bronze brng
1—160" face x 30" dia—roller brng

SUCTION EXTRACTOR ROLLS—DOWNINGTOWN

1—105" face x 19" dia
1—126" face x 22" dia; complete section
1—134" face x 18" dia.; A-F Brng

SUCTION PRESS SECTIONS

1—120" face x 18" dia—R.C.—Roller brng
1—114" face x 20¼" dia. R. C. Complete section

SUPERCALENDERS

2— 30" Norwood 4 roll
2— 63" Norwood 8 roll; A-F Brng
1— 92" Norwood 7 roll w/drive

TOWEL & NAPKIN FOLDERS

1—Hudson Sharp 50", single fold—towel
2—Paper Converting ¼ fold—napkin
1—Paper Converting single fold—towel

THICKENERS

2—Shartle Cylinders 130" x 42"—16" R.C. Couches

TRIMMERS—POWER BACK GAUGES

1— 38" Seybold w/motors
1— 50" Seybold Twentieth Century
1— 57" Seybold Precision
2— 65", 84" Seybold Daytons

UNWIND STANDS—CONSTANT TENSION

1— 34" Cameron Type CT—Electric Eye
1— 34" Cameron Type CT
1— 52" Cameron Type CT
1— 72" Cameron—water cooled brake
1— 82" Cameron—water cooled brake

VACUUM PUMPS

8—H-4, ½H-5, & H-5 Nash
2—L-5 & L-7 Nash
6—#2, #3, #4, & #7 Nash Hytors
1—8 x 10 Connersville
3—MD-2 Nash w/motors; new laboratory models

YANKEE DRYERS

1—132" face x 10' dia Beloit; 35 psi

Help Wanted

Help Wanted

CHEMISTS

Applications Research

MS-Ph D's, for expanding programs in applications research in our CHEMICALS DIVISION at NEW HAVEN, CONN. We require chemists possessing experience in the Pulp and Paper industry, with particular emphasis on Pulp Processing.

For further information, write: E. R. BROWN

OLIN MATHIESON CHEMICAL CORP.

275 Winchester Ave. New Haven, Conn.

N-28

CONTROL ENGRS.

New England manufacturer has openings for:

1. Assistant to control superintendent, 8 to 10 years experience. Starting salary $8,000/10,000 per year.
2. Control engineers, 3 to 5 years experience. Starting salary $6,000/8,000 per year. Excellent opportunity in growth company. Send resume in strict confidence to Box 60-240 care Paper Trade Journal.

D-12

PRODUCTION MGR.

Dynamic, growing company in New England wants a man with heavy experience in newsprint and coated paper. Exceptional opportunity. Excellent benefits, including stock option. Salary $18,000/20,000 per year. Send resume in strict confidence to Box 60-239 care Paper Trade Journal.

D-12

PROJECT CHEMIST

Immediate opening for a graduate chemist or chemical engineer, with two to four years experience in the paper industry. Bleached sulphate board mill, located in the Southeast. Salary open, depending upon qualifications. All replies confidential. Send complete resume to Box 60-229, Paper Trade Journal, 49 West 45th Street, New York 36, New York. D-5

Wanted

WANTED

Used or surplus lab equipment. Model C Mullen Tester, Tear Tester, ream weight scale, drying oven, analytical balance, Barnstead still, ½ to 2 gpm.

Address Box 60-225 care Paper Trade Journal. N-28

SALES REPRESENTATIVE wanted for Eastern area to sell general line of coated printing papers to merchants and converters. Send resume of previous experience. Salary is open.

Miami Valley Coated Paper Co.
432 Park Avenue South
New York 16, N. Y. N-28

SUPERVISOR OF TECHNICAL INFORMATION

Engineering or technical graduate with broad experience in pulp and paper industry to collect and edit useful engineering and technical information for distribution to TAPPI members. Age of 35 or over preferred. Project will require 2-3 years. Salary commensurate with qualifications.

Please send resume of experience, education and salary requirements to:

Executive Secretary
Technical Association of the Pulp and Paper Industry
360 Lexington Ave.
New York 17, N. Y. N-28

Situations Wanted

POSITION WANTED

Man available with 23 years diversified paper industry experience; technical pulp & paper education. Paper manufacturing experience includes technical, operation, and sales-service on various grades. Also 10 years technical sales, service, and product development to paper mills. Box 60-248 care Paper Trade Journal.

D-5

Production executive — conversion of boards, paper & film. Well versed in heading up all production functions in an organization; or reorganization deal. Multiple manufacturing units. Employed — wishes change for challenging opportunity. Box No. 60-168 care Paper Trade Journal.

D-26

AVAILABLE

1—Hamblet Rotary Sheeter 100" face, Type 1-8 with 900 RPM 7½ H.P. Motor.
1—Cameron 162" face Camachine #19, both shear and score cut, drive included also unwind stand. This machine has available a 4000 pound rotary hydraulic lift table 2'8" x 13'8".
1—Type 18 Cameron Winder with 104" drums. Will make 60" dia. roll.
1—82" Cameron Rewinder Type 10-8-04 with unwind stand and drives.
1—82" Langston two-drum Winder. Will make 50" dia. rolls.
1—Clark-Aiken Duplex Sheeter Serial No. HD 1004, Type H, 166" wide with tape delivery to fixed layboy adjustable to sheet lengths from 25" to 84".
1—Black-Clawson (Miami) No. 24 P Selectifier Screen, complete with 10 H.P. motor.
1—110" Bagley & Sewall Pope Type Reel complete, A.F. bearings.
1—Black-Clawson Uniform Speed Reel with 42" x 160" drum, 4 mandrels, A.F. bearings, air controlled.
1—Valley Iron Works Voith Type Inlet for use with open type headbox, 167" deckle 96" head, with 2 distributing rolls.
1—Sinclair Dandy Roll 20" dia. 175" face with trunnion type bearings and drive.
1—Dilts Machine Works continuous type Broke Beater 64" dia. 48" face roll.
1—Overhead Roll Header for rolls 50" dia. up to 80" face.
28—4" Vortrap Classifiers complete with headers.
3—Bird 6" Dirtec Cleaners with stainless steel stock headers.
18—Dirtec 6" Primary units complete with 2" secondary units, and stainless steel headers. N-28

FULTON, NEW YORK **OSBORNE PAPER MILL EQUIPMENT CORP.** PHONE LY 2-4254

Situations Wanted

SALES EXECUTIVE

Many years experience—Wide knowledge markets—Kraft and Sulphite Converting and Industrial Papers. Desires position of responsibility in sales office or as sales representative New York Metropolitan, New Jersey, Philadelphia Trading Areas. Box 60-242 care Paper Trade Journal. D-5

CHEMICAL ENGINEER—10 years experience with major paper company in research and development of coatings for printing paper and board, desires opportunity with other paper company or supplier. Address Box 60-250 care Paper Trade Journal. N-28

For Sale

FOR SALE

1—60"Hamblet Sheeter. 8 Roll Backstands and Layboy.
1—75" Hamblet Duplex Sheeter. 8 Roll Backstands. Maxon Overlapping Delivery and Erie Layboy. Address Box 60-245 care Paper Trade Journal. N-28

FOR SALE

2—New 3-Deck Hudson Sharp 10" x 10" Cocktail Napkin Machines. Formers for popular "Hanky" included. Complete machines—Immediate Delivery. Contact Gibbs-Brower Company, Inc., 10 Depot Plaza, White Plains, New York, RO 1-1130. N-28

PUBLIC Auction

Complete two machine Fine Paper Mill, Gatehouse Road, off Lyman Street, Holyoke, Mass. Wednesday, December 14, 10 a.m.

Formerly a division of Whiting Paper Company.

Real Estate and all Equipment. Inspection now to Sale Date

For Descriptive brochure call or write

H. MELTZER & SONS,

Box 53 Cicero, New York; Phones, OW 9-5461, or Syracuse, GI 6-2114, Sales Managers and Auctioneers.

N-28

LOOK through the columns of the CLEARING HOUSE

For Sale

FOR SALE

One (1) new 12 ft. x 60 ft. 2-section Canadian Ingersoll-Rand Barking Drum. Weidrum type. Purchased new in 1959 and never installed. Complete with drive and auxiliaries.
Reply Box 60-244 care Paper Trade Journal. D-19

For Sale

FOR SALE

1—45" Beck Model CCSH Sheeter. Suitable for cellophane and plastic films. Complete with electric eye and web guide. For further particulars address Box 60-243 care Paper Trade Journal. N-28

Conical Perforation and Thickness of Material

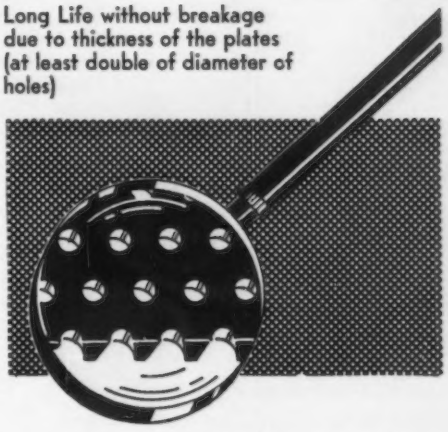
are the principal characteristics of my

Screen Plates

made of brass, bronze or stainless steel

Also:
Cut Plates, complete Screen Drums,
Dandy Rolls for all purposes,
Flat and Rotary Screens,
All kind of Fourdrinier Wires for Paper, Board and Cellulose Mills

Long Life without breakage due to thickness of the plates (at least double of diameter of holes)



diameter of holes down to 0.02" for screens and classifiers of all systems

Proved in most of the European and in many Oversea Ground Wood Paper and Cellulose Mills

for quotation apply to:

Hermann Finckh

Metalltuch-und Maschinenfabrik
Reutlingen/Germany

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Carthage Machine Co. ..... —
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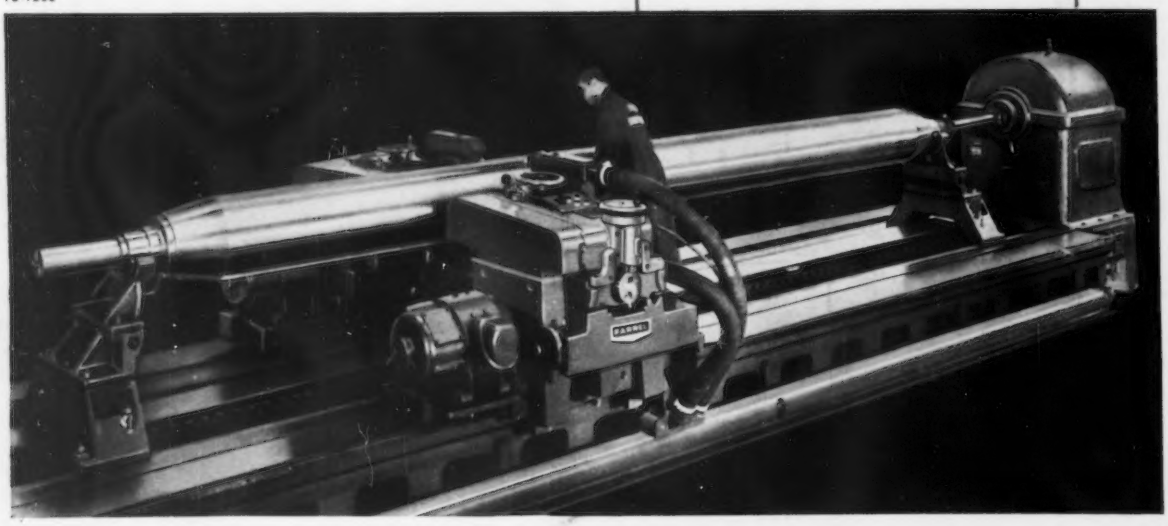
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